NATIONAL TWIST DRILL & TOOL COMPANY

INCORPORATED 1903

Cable Address
"NATROIT" Detroit
Iron Age Code on page 8

Detroit, Mich., U. S. A.

Manufacturers of Twist Drills, Reamers, Milling Cutters and Special Tools

BRANCH OFFICE
60 Wilson Street, E. C., London, England

TWIST DRILLS
REAMERS
SOCKETS
MILLING CUTTERS
GEAR CUTTERS

Twist Drills, Reamers and Other Tools

The National Twist Drill & Tool Company manufactures all the styles and sizes of twist drills and reamers listed in the "Universal Twist Drill and Reamer Tables" appearing on preceding pages of this publication. In addition, this Company makes other forms of carbon and high speed cutting tools. Illustrative catalogues containing full information will be sent on request.

In all correspondence and negotiations, or when ordering, the numbers used by this Company should be utilized instead of those in the "Universal" Tables, as follows:

For convenience in ordering or making inquiries, "National" Table Numbers should be used instead of "Universal" Table Numbers appearing on preceding pages of this publication.

TABLE I. COMPARATIVE CATALOGUE NUMBERS

National list numbers corresponding to "Universal" list numbers (pp. 604-610). In correspondence and ordering, National numbers only should be used.

Universal Table No.	National Table No.	Universal Table No.	National Table No.	Universal Table No.	National Table No.	Universal Table No.	National Table No.
B 1	93	B13	98	B25	110	B42	151
B 2	200	B14	211	B26	6	B43	232
B 3	91	B15	95	B28	119M	B44	124B
B 4	201	B16	206	B29	206M	B45	266B
B 5	130	B17	100	B30	9	B46	140
B 6	117M	B18	217	B32	120	B47	224
B 7	200M	B19	99	B36	142M	B48	150
B 8	118M	B20	209	B37	143M	B50	142
B 9	201M	B21	101	B38	135	B51	226
B10	129	B22	210	B39	220	B52	143
B11	97	B23	109	B40	140A	B53	227
B12	208	B24	13	B41	224A	B54	135M

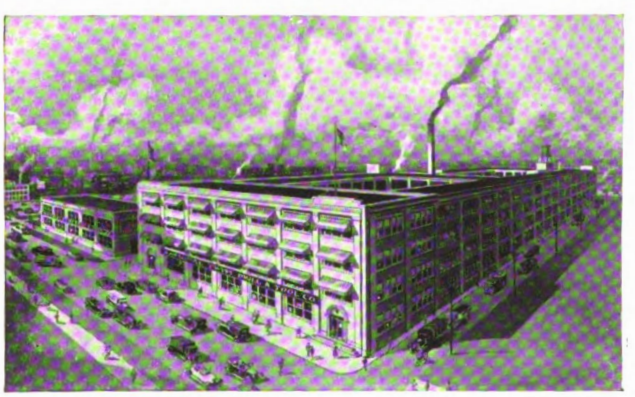


FIG. 1. PLANT OF THE NATIONAL TWIST DRILL & TOOL COMPANY, DETROIT, MICH., U. S. A.

Stock Shipments

We are in a position to furnish practically all the above tools promptly from stock.

Discounts

Carbon tools shown in "Universal" Tables are subject to liberal discounts. High speed tools are subject to additions. This information may be secured upon application either by mail or cable.

Terms

Reasonable credit will be extended to those companies which are entitled to it. People whom we have not already had the pleasure of serving will kindly give references, names of manufacturers located in the U. S. A. being particularly desired, as well as full financial information.

Milling Cutters and Special Tools

In addition to tools listed in Universal Tables we manufacture numerous other forms of carbon and high speed cutting tools, of which a few of the more important are listed here.

PLAIN MILLING CUTTERS—No. 234 is made of high speed steel; No. 159 of carbon steel. Standard cutters range in diameter from 2¼ to 4½ in. (57 to 114 mm.) and in face width from ⅛ to 6 in. (8 to 152 mm.). Any required special size can be made to order. Cutters of ¾ in. (19 mm.) face and over have teeth of a spiral form.

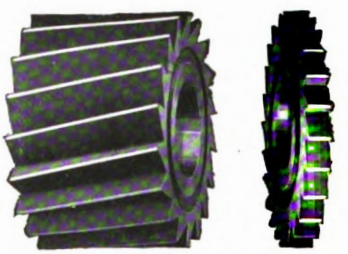


FIG. 2. PLAIN MILLING CUTTERS
CARBON STEEL NO. 159
HIGH SPEED STEEL NO. 234



FIG. 3. SIDE MILLING CUTTER
CARBON STEEL NO. 161
HIGH SPEED STEEL NO. 236

SIDE MILLING CUTTERS—No. 236 is of high speed steel; No. 161 of carbon steel. Diameters: 2 to 8 in. (51 to 203 mm.); face widths: 1/16 to 1⅜ in. (5 to 35 mm.).

METAL SLITTING SAWS—No. 238 is of high speed steel; No. 159 of carbon steel. Diameters: 2½ to 8 in. (64 to 203 mm.); thicknesses: 1/32 to ⅛ in. (¾ to 3 mm.).

STRAIGHT SHANK END MILLS—No. 268 is of high speed steel; No. 161 of carbon steel. Made right or left hand. Diameters: ⅛ to 1 in. (3 to 25 mm.).

TAPER SHANK END MILLS—Nos. 240 (high speed) and 162 (carbon) have B. & S. taper; Nos. 240A (high speed) and 162A (carbon) have Morse taper. Diameters range from ¼ to 2 in. (6 to 51 mm.).



FIG. 4. METAL SLITTING SAW
CARBON STEEL
NO. 159



FIG. 5. NO. 163 SPIRAL END MILL
B. & S. Taper Shank, Left Hand Mill

SPIRAL END MILLS—Nos. 241 (high speed) and 163 (carbon) have B. & S. taper shanks; No. 241A (high speed) and 163A (carbon) have Morse taper shanks. Diameters: ¼ to 2 in. (6 to 51 mm.).

INVOLUTE GEAR TOOTH CUTTERS—No. 255 is of high speed steel; No. 178 of carbon steel. Cutters vary in diameter from 8½ to 1¾ in. (216 to 44 mm.). Corresponding pitches range from 1 to 120 (module: 25 to 0,2 mm.). Eight cutters are made for each pitch. All gears of the same pitch cut with these cutters are interchangeable.

CATALOGUE—Milling cutter and special tool catalogue supplied upon application.

SIGUE EL TEXTO ESPAÑOL

SEGUE-SE O TEXTO PORTUGUEZ

LE TEXTE FRANÇAIS FAIT SUITE

Digitized by Google

РУССКІЙ ТЕКСТЪ СЛѢДУЕТЪ

BROCAS SALOMONICAS, ESCARIADORES Y FRESAS

Portabrocas; Fresas para Tallar Engranajes; Herramientas Especiales.

Herramientas National

La National Twist Drill & Tool Co. fabrica brocas salomónicas y escariadores en todos los tamaños y estilos. A solicitud se remiten catálogos descriptivos de estas herramientas.

Existencias en Almacén

La compañía tiene siempre en existencia grandes cantidades de herramientas, lo que le permite hacer embarques con prontitud.

Descuentos

Las herramientas de acero dulce que se mencionan en las "Tablas Universal" del texto ingles están sujetas a un cierto descuento. Las herramientas de acero rápido están sujetas a aumentos que dependen de las condiciones en el mercado del acero.

Condiciones de Venta

La casa concede crédito a aquellas compañías cuya condición financiera y reputación garantizan tal concesión. Aquellos de nuestros clientes que aun no han establecido relaciones comerciales con esta casa y que deseen condiciones de pago favorables, deberán someter a la compañía sus referencias bancarias.

Fresas y Herramientas Especiales

Además de las herramientas que se mencionan en las "Tablas Universales," la compañía fabrica fresas de desbastar, una lista de las cuales se da a continuación.

Fresas Sencillas de Desbastar

La fresa No. 234, fig. 2, se hace de acero rápido. La No. 159 se hace de acero dulce. Los tamaños corrientes varían en diámetro desde 2¼ hasta 4½ pulg. (57 a 114 mm.) y tienen un ancho de cara de $\frac{5}{8}$ a 6 pulg. (8 a 152 mm.).

Fresas para Cortar por el Lado—La fresa No. 236, fig. 3, es de acero rápido. La No. 161 es de acero dulce. Los diámetros varían entre 2 y 8 pulg. (51 y 203 mm.). Ancho de la cara, $\frac{5}{8}$ a 1⅜ pulg. Espesor, $\frac{1}{32}$ a ⅛ pulg. (¾ a 3 mm.).

Fresa Espiral—La fresa 163, fig. 5, es de acero dulce y tiene espiga cónica, calibre Morse. Los diámetros varían entre ¼ y 2 pulg. (6 a 51 mm.).

Fresas para Tallar Engranajes—La fresa 255 es de acero rápido y la No. 178, de acero dulce. Estas fresas varian en diámetro de 8½ a 1¾ pulg. (216 a 44 mm.).

FABRICANTES DE BROCAS AMERICANAS E FERRAMENTES ESPECIAES

Mandris, Fresas Communs e para Cortar Engrenagens, Buchas para Brocas.

Brocas Americanas, Mandris e Outras Ferramentas

A National Twist Drill & Tool Company, fabrica todas as classes e qualidades de brocas e mandris mencionados na lista "Universal Twist Drills and Reamers" que se encontra no texto inglez. Em addição a estas ferramentas, esta companhia tambem fabrica outras qualidades de ferramentas para trabalhos mechanicos. Enviaremos com muito prazer os nossos catalogos illustrativos a quem nol-os pedir.

Ao pedirem-nos informações ou artigos, façam o favor de mencionar o numero correspondente na lista desta Companhia e não da lista Universal.

Sortimento em Stock

Dispomos de um grande sortimento de nossas ferramentas em stock e portanto estamos habilitados a satisfazer qualquer pedido com a maior brevidade possivel.

Discontos

As ferramentas de aço carbono, indicadas nas tabellas "Universal" estão sugeitas a discontos liberaes. As de aço de alta velocidades estão sugeitas a addições. Estas informações poderão ser obtidas pelo correio ou telegrapho.

Termos

Concedemos creditos rasoaveis ás Companhias que dispoem de bôa reputação commercial. As casas que ainda não tivemos o prazer de servir, ao nos escrever, façam o favor de dar referencias financeiras e comerciaes.

Fresas e Ferramentas Especiaes

No texto inglez illustramos tres differentes typos de fresas. A nossa fresa commum No. 234 é de aço de alta velocidade e a No. 159 de aço carbono. Variam em diametro de 57 a 114 mm. e 8 a 152 mm. de face. Podemos fazel-as em qualquer tamanho a pedido especial do freguez. As fresas de 19 mm. de face, ou maiores, terão os dentes espiraes.

As fresas para cortes lateraes (Fig. 3), No. 236 são de aço de alta velocidade e as No. 161 de aço carbono. Diametro: 51 a 203 mm. Largura das faces: 5 a 35 mm.

As serras de discos (Fig. 4), são de 64 a 203 mm. de diametro e ¾ a 3 mm. de espessura. As No. 268 são de aço de alta velocidade e as No. 161 de aço carbono.

As fresas de cabos conicos (Fig. 5), No. 240 são de aço de alta velocidade e as No. 162 de aço carbono. Teem encabadouros B. & S. ou Morse, de accordo com o seu typo.

As outras ferramentas são feitas da melhor classe do material, mais apropriado ao seu fim.

O nosso catalogo geral e completo dá todas as informações sobre os nossos artigos. Peçam-nos que teremos immenso prazer em envial-os.

FORETS HELICOIDAUX, ALESOIRS, FRAISES ET OUTILS SPECIAUX

Forets Hélicoïdaux, Alésoirs, Douilles, Fraises, Fraises à Tailler les Engrenages.

Forets Hélicoïdaux, Alésoirs et Autres Outils

La National Twist Drill & Tool Company fabrique tous genres et toutes dimensions de forets hélicoïdaux, et d'alésoirs compris dans les tables "Universal" des pages précédentes. De plus, elle fabrique des fraises en acier au carbone et des fraises à coupe rapide. Des catalogues illustrés très complets sont envoyés sur demande.

Dans la correspondance n'employer que les numéros de table "National" et non les "Universal," se reporter au texte anglais.

Expéditions Immédiates

Ayant les outils ci-dessus en stock, la National Twist Drill & Tool Company peut les livrer immédiatement.

Remises

Les tarifs sont sujets à des remises commerciales intéressantes qui sont adressées sur demande écrite ou câblée.

Paiements

Des crédits raisonnables sont accordés aux maisons qui offrent des garanties sérieuses. Celles qui n'ont aucun compte avec la Compagnie sont priées de donner des références.

Fraises et Outils Spéciaux

En plus des outils indiqués dans les tables "Universal" la National Twist Drill & Tool Company fabrique un certain nombre d'outils tels que fraises en acier au carbone et à coupe rapide dont quelques-unes des plus importantes sont décrites ci-après.

Fraises Ordinaires—No. 159 en acier au carbone et No. 234 en acier à coupe rapide de 57 à 114 mm. de diamètre et de 8 à 152 mm. de largeur.

Fraises de Côté—No. 236 en acier à coupe rapide et No. 161 en acier au carbone de 51 à 200 mm. de diamètre et de 5 á 35 mm. de largeur.

Scies à Débiter les Métaux—No. 238 en acier à coupe rapide et No. 159 en acier au carbone de 64 à 203 mm. de d. et de ¾ à 3 mm. d'épaisseur.

Fraises à Queue Cylindrique—No. 268 en acier à coupe rapide et No. 161 en acier au carbone, coupe à droite ou à gauche de 3 à 25 mm. de diamètre.

Fraises à Queue Conique—Nos. 240A et 240 en acier à coupe rapide et Nos. 162A et 162 en acier au carbone. Se font au cône Morse ou au cône Brown & Sharpe de 6 à 51 mm. de diamètre.

Fraises en Bout—No. 241 en acier à coupe rapide et No. 163 en acier au carbone à queue conique Brown & Sharpe. No. 241A en acier rapide et No. 163A en acier au cône Morse de 6 à 51 mm. de diamètre.

Fraises à Tailler les Engrenages—No. 255 en acier à coupe rapide et No. 178 en acier au carbone. Ces fraises varient en diamètre de 216 à 44 mm. et pour des modules de 25 à 0,3 mm. Huit fraises module. Les engrenages du même module taillés avec ces fraises sont interchangeables.

Catalogue—Le catalogue des fraises et des outils spéciaux est envoyé sur demande.

СПИРАЛЬНЫЯ СВЕРЛА, РАЗВЕРТКИ, ФРЕЗЫ И СПЕЦІАЛЬНЫЕ ИНСТРУМЕНТЫ.

Спиральныя сверла, развертки, сверлильныя головки, фрезы различныхъ формъ и другіе рѣжущіе инструменты.

Издѣлія и каталоги.

„National Twist Drill & Tool Company" изготовляетъ всѣ типы и размѣры спиральныхъ сверлъ и развертокъ, помѣщенныхъ въ „Универсальномъ" спискѣ (см. стр. 605), кромѣ того Компанія изготовляетъ также и много другихъ рѣжущихъ инструментовъ изъ быстрорѣжущей и высокоуглеродистой стали. Иллюстрированные, подробные каталоги высылаются по запросу.

Во всѣхъ сношеніяхъ Компанія проситъ ссылаться на собственные номера вмѣсто тѣхъ, которые помѣщены въ „Универсальной" таблицѣ.

Таблица I даетъ соотвѣтствіе между номерами „Универсальнаго" списка и номерами Компаніи.

Доставка со склада.

Большинство размѣровъ спиральныхъ сверлъ и другихъ инструментовъ могутъ быть доставлены безъ всякой задержки прямо со склада.

Скидки и надбавки.

Инструменты изъ углеродистой стали, показанные въ „Универсальной" таблицѣ, подвержены довольно значительнымъ скидкамъ; инструменты изъ быстрорѣжущей стали—надбавкамъ. Свѣдѣнія сообщаются по запросу, письменно или телеграфно.

Условія продажи.

Либеральныя условія кредита даются всѣмъ солиднымъ фирмамъ. Лицъ еще не имѣвшихъ торговыхъ сношеній съ Компаніей просятъ присылать референціи и свѣдѣнія касающіяся ихъ финансоваго положенія. Особенно желательны ссылки на Американскія фирмы.

Фиг. 1. — Заводъ Компаніи въ Детройтѣ, шт. Мичиганъ.

Фиг. 2. — Спиральныя фрезы. — Изъ углеродистой стали — № 159, или изъ быстрорѣжущей стали — № 234.

Фиг. 3. — Боковыя фрезы. — Изъ углеродистой стали — № 161, или изъ быстрорѣжущей стали—236.

Фиг. 4. — Фрезерная пила.—Изъ углеродистой стали—№ 159.

Фиг. 5. — Спиральная торцевая фреза № 163. — Головка съ конусомъ Браунъ и Шарпъ.

Digitized by Google

CODE WORDS FOR USE WITH UNIVERSAL TWIST DRILL AND REAMER TABLES

(a) Item No.	(b) Code Word	(c) Description
B 1	RABAB	Taper shank drills, carbon steel
B 2	RABEC	Taper shank drills, high speed steel
B 3	RABID	Straight shank drills, long set, carbon steel
B 4	RABOF	Straight shank drills, long set, H.S.S.
B 5	RACAJ	Steel sleeve or shell sockets for taper shank
B 6	RACEK	Mm. size drills, taper shank, carbon steel
B 7	RACIL	Mm. size drills, taper shank, H.S.S.
B 8	RACUG	Mm. size drills, st. shk., long set, C.S.
B 9	RADAP	Mm. size drills, st. shk., long set, H.S.S.
B 10	RADER	Fitted sockets
B 11	RADOM	Straight shank drills, wire gauge, carbon steel
B 12	RADUN	Straight shank drills, wire gauge, H.S.S.
B 13	RAFIS	Square shank ratchet drills, carbon steel
B 14	RAFOT	Square shank ratchet drills, high speed steel
B 15	RAFUV	Straight shank drills, short set, carbon steel
B 16	RAGAW	Straight shank drills, short set, H.S.S.
B 17	RAGEK	Drills for blacksmith's drill presses, long set, carbon steel
B 18	RAGIZ	Drills for blacksmith's drill presses, long set, high speed steel
B 19	RAJAD	Drills for blacksmith's drill presses, short set, carbon steel
B 20	RAJEF	Drills for blacksmith's drill presses, short set, high speed steel
B 21	RAJOB	Drills for blacksmith's drill presses, C.S
B 22	RAJUC	Drills for blacksmith's drill presses, H.S.S.
B 23	RAKAL	Bit stock drills for metal or wood
B 24	RAKIG	Wood bits for brace, set of 7
B 25	RAKOJ	Wood bits for brace
B 26	RAKUK	Jobber's straight shank drill set, carbon steel
B 27	RALEM	Jobber's straight shank drill set, H.S.S.
B 28	RALIN	Mm. size st. shk. drills, short set, C.S.
B 29	RALOP	Mm. size st. shk. drills, short set, H.S S.
B 30	RALUR	Straight shank wire gauge drill set, C.S.
B 31	RAMAS	Straight shank wire gauge drill set, H.S.S.
B 32	RAMET	Mm. size ratchet drills, carbon steel
B 33	RAMIV	Mm. size ratchet drills, high speed steel
B 34	RANAZ	Mm. size bit stock drills
B 35	RANOW	Mm. size expansion reamers
B 36	RANUX	Mm. size reamers, fluted shell
B 37	RAPEB	Mm. size reamers, rose shell
B 38	RAPIC	Hand reamers, carbon steel
B 39	RAPOD	Hand reamers, high speed steel
B 40	RAPUF	Fluted chucking reamers, taper shank, C.S.
B 41	RARAG	Fluted chucking reamers, taper shk., H.S.S.
B 42	RAREJ	Taper bridge reamers, taper shk., C.S.
B 43	RARIK	Taper bridge reamers, taper shank, H.S.S.
B 44	RAROL	Combined drills and countersink, C.S.
B 45	RASAN	Combined drills and countersink, H.S.S.
B 46	RASEP	Fluted chucking reamers, st. shk., C.S.
B 47	RASIR	Fluted chucking reamers, st. shk., H.S.S.
B 48	RASOZ	Standard taper pin reamers
B 49	RASUM	Expansion reamers
B 50	RATAV	Fluted shell reamers, carbon steel
B 51	RATOS	Fluted shell reamers, high speed steel
B 52	RATUT	Rose shell reamers, carbon steel
B 53	RAVAC	Rose shell reamers, high speed steel
B 54	RAVED	Mm. size hand reamers

(a) Refers to numbers used in Universal tables.
C.S. = carbon steel; H.S.S. = high speed steel; mm. = millimeter; st. = straight; shk. = shanks.

PALABRAS DE CLAVE PARA USARLAS CON LAS TABLAS DE LAS BROCAS Y ESCARIADORES

(a) Número de la pieza; (b) Clave; (c) Descripción; (1) Acero duro, espiga cónica; (2) Acero rápido, espiga cónica; (3) Acero duro, espiga cilíndrica; (4) Acero rápido, espiga cilíndrica; (5) Boquilla para espiga cónica; (6) Acero duro, espiga cónica, tamaño mínimo; (7) Acero rápido, espiga cónica, tamaño mínimo; (8) Espiga cilíndrica, acero duro, tamaño mínimo; (9) Espiga cilíndrica, acero rápido, tamaño mínimo; (10) Boquillas ajustadas; (11) Espiga cilíndrica, acero duro; (12) Espiga cilíndrica, acero rápido; (13) Broca, espiga cuadrada para berbiquíes de chicharra; (14) Espiga cuadrada para berbiquíes de chicharra, acero rápido; (15) Espiga cilíndrica, brocas cortas, acero duro; (16) Espiga cilíndrica, brocas cortas, acero rápido; (17) Brocas para taladros de herreros, acero duro; (18) Brocas para taladros de herreros, acero rápido; (19) Brocas para taladros de herreros, cortas, acero duro; (20) Brocas para taladros de herreros, cortas, acero rápido; (21) Brocas para taladros de herreros, largas, acero duro; (22) Brocas para taladros de herreros, acero rápido; (23) Brocas largas para metales o madera; (24) Mechas para madera; juego de siete; (25) Mechas para madera; (26) Juego de brocas de acero duro; (27) Juego de brocas de acero rápido; (28) Brocas cortas, tamaños mínimos, acero duro; (29) Brocas cortas, tamaños mínimos, acero rápido; (30) Espiga cilíndrica, tamaños mínimos, acero duro; (31) Espiga recta, acero rápido; (32) Brocas para berbiquíes de chicharra, acero duro; (33) Brocas para berbiquíes de chicharra, acero rápido; (34) Mechas de tamaños mínimos; (35) Escariadores de expansión, tamaños mínimos; (36) Escariadores de espiga cónica, tamaños mínimos; (37) Escariadores de tamaño mínimo; (38) Escariadores de mano, acero duro; (39) Escariadores de mano, acero rápido; (40) Escariadores con espiga cónica, acero duro; (41) Escariadores con espiga cónica, acero rápido; (42) Escariadores de cuerpo y espiga cónica, acero duro; (43) Escariadores cónicos y espiga cónica, acero rápido; (44) Avellanador y broca, combinados, acero duro; (45) Avellanador y broca combinados, acero rápido; (46) Escariadores espirales, espiga cilíndrica, acero duro; (47) Escariadores espirales, espiga cilíndrica, acero rápido; (48) Escariadores normales para pasadores cónicos; (49) Escariadores de expansión; (50) Escariadores espirales, acero duro; (51) Escariadores espirales, acero rápido; (52) Escariadores de acero duro; (53) Escariadores de acero rápido; (54) Escariadores de mano, tamaño mínimo.

PALAVRAS DE CODIGO PARA AS BROCAS AMERICANAS E MANDRIS "UNIVERSAL"

(a) No. do artigo (b) Palavra do Codigo (c) Descripção. As iniciaes "AC" significam, aço carbono; "AGV" aço de grande velocidade "MM" millimetro; "R" recto; "C" conico. (1) Broca de cabo conico e de aço carbono. (2) Idem de aço de grande velocidade. (3) Broca de cabo recto, longo e ajuste e de A.C. (4) Idem de A.G.V. (5) Encabadouro de aço para broca de cabo C. (6) Tamanho em MM das brocas de cabo C e de A.C. (7) Idem A.G.V. (8) Idem, de cabo R., longo e de A.C. (9) Idem de A.G.V. (10) Encabadouros Ajustaveis. (11) Brocas de cabo R, calibre para arames e de A.C. (12) Idem, de R.G.V. (13) Brocas de Cabo quadrado, de roquete e de A.C. (14) Idem de A.G.V. (15) Idem, de pequeno ajuste de A.C. (16) Idem, de A.G.V. (17) Brocas para machinas de perfurar (de ferreiro), longo ajuste e de A.C. (18) Idem, de A.G.V. (19) Idem de pequeno ajuste e A.C. (20) Idem de A.G.V. (21) Brocas para machinas de perfurar (de ferreiro) e de A.C. (22) Idem, de A.G.V. (23) Brocas para metal ou madeira. (24) Brocas para madeira, jogo No. 7. (25) Brocas para madeira, para cabos de braços. (26) Jogo de brocas de cabos R e de A.C. (27) Idem, de cabo C e de A.G.V. (28) Tamanho em MM das brocas de cabos R pequeno ajuste de A.C. (29) Idem, de A.G.V. (30) Jogo de brocas de cabos R., calibre para arames e de A.C. (31) Idem, de A.G.V. (32) Tamanho em MM das brocas, cabo de roquete, de A.C. (33) Idem, de A.G.V. (34) Tamanho em MM de cabos em branco para brocas. (35) Tamanho em MM dos mandris de expansão. (36) Idem dos mandris de pontas quadradas. (37) Idem, dos mandris de pontas chanfradas. (38) Mandris manuaes, de A.C. (39) Idem, de A.G.V. (40) Mandris de pontas quadradas para buchas, cabo C e de A.C. (41) Idem, de A.G.V. (42) Mandris de cabos C, cana de ponte e de A.C. (43) Idem, de A.G.V. (44) Combinação de broca e escariador, cabo C, de A.C. (45) Idem, de A.G.V. (46) Mandris de pontas quadradas, para buchas, cabos R e de A.C. (47) Idem, de A.G.V. (48) Mandris correntes. (49) Mandris de expansão. (50) Mandris de pontas quadradas e de A.C. (51) Idem, de A.G.V. (52) Mandris de pontas chanfradas e de A.C. (53) Idem, de A.G.V. (54) Tamanhos em MM dos mandris manuaes.

CODE EMPLOYE AVEC LES TABLES DES FORETS ET ALESOIRS "UNIVERSAL"

(a) Numéro de l'article (la lettre B est à ajouter partout). (b) Mot de code. (c) Description.

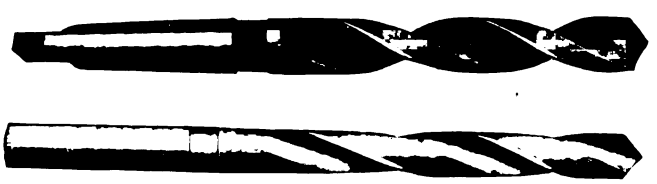
Les abréviations suivantes sont employées: Acier carbone AC. Acier rapide AR. Queue cylindrique cy. Queue conique co. Queue carrée ca. Long 1. Court c. Série S. En mesures millimétriques smm. Jauge des fils Jf. Pour perceuse de forge Pf. A main m. Pour rochet r. Pour commissionnaires comm.

1. Forets co, AC. 2. Forets co, AR. 3. Sl, Forets cy, AC. 4. Sl, Forets cy, AR. 5. Manchons acier pour co. 6. Forets smm. co, AC. 7. Forets smm. co, AR. 8. Sl, Forets, smm. cy, AC. 9. Sl, Forets smm. cy. AR. 10. Manchons doubles. 11. Forets cy, Jf, AC. 12. Forets cy, Jf, AR. 13. Forets r, ca, AC. 14. Forets r, ca, AR. 15. Sc, Forets cy, AC. 16. Sc, Forets cy, AR. 17. Sl, Forets Pf, AC. 18. Sl, Forets Pf, AR. 19. Sc, Forets Pf, AC. 20. Sc, Forets Pf, AR. 21. Forets Pf, AC. 22. Forets Pf, AR. 23. Forets m pour bois ou métal. 24. S. de 7 Mèches à bois vilebrequin. 25. Mèches à bois vilebrequin. 26. S. comm. Forets cy, AC. 27. S. comm. Forets cy, AR. 28. Sc. Forets smm, cy, AC. 29. Sc, Forets smm, cy, AR. 30. S. Forets cy, Jf, AC. 31. S. Forets cy, Jf, AR. 32. Forets r, smm, AC. 33. Forets r, smm, AR. 34. Forets m, smm. 35. Alésoirs extensibles, smm. 36. Alésoirs sans queues smm. 37. Alésoirs sans queues, entrée arrondie smm. 38. Alésoirs m, AC. 39. Alésoirs m, AR. 40. Alésoirs pour mandrin co, AC. 41. Alésoirs pour mandrin co, AR. 42. Alésoirs cylindro coniques, co, AC. 43. Alésoirs cylindro coniques, co, AR. 44. Forets à centrer, AC. 45. Forets à centrer, AR. 46. Alésoirs pour mandrins, cy, AC. 47. Alésoirs pour mandrin, cy, AR. 48. Alésoirs courants coniques. 49. Alésoirs extensibles. 50. Alésoirs sans queue, AC. 51. Alésoirs sans queue, AR. 52. Alésoirs à entrée arrondie, AC. 53. Alésoirs à entrée arrondie, AR. 54. Alésoirs à main smm.

Слова кода для универсальной таблицы сверлъ и развертокъ.

Эти слова кода даны въ англійской таблицѣ противъ каждаго номера. Ниже приведены характеристики сверлъ и развертокъ въ табличномъ порядкѣ. Условныя обозначенія: У. С.—углеродистая сталь; Б. Р. С.—быстрорѣжущая сталь; мм. разм.—миллиметровый размѣръ; пров. кал.—проволочный калибръ; хв.—хвостъ; кон.—конусный; пр.—прямой; кв.—квадратный. — 1) Сверла съ кон. хв. У. С. 2) Тоже Б. Р. С. 3) Длинныя сверла съ пр. хв. У. С. 4) Тоже Б. Р. С. 5) Оправки для кон. хв. 6) Сверла мм. разм. кон. хв. У. С. 7) Тоже Б. Р. С. 8) Тоже длинный пр. хв. У. С. 9) Тоже Б. Р. С. 10) Составная оправка. 11) Сверла съ пр. хв. пров. кал. У. С. 12) Тоже Б. Р. С. 13) Ручныя сверла кв. хв. У. С. 14) Тоже Б. Р. С. 15) Короткія сверла пр. хв. У. С. 16) Тоже Б. Р. С. 17) Сверла для кузнечныхъ работъ, длинныя, У. С. 18) Тоже Б. Р. С. 19) Тоже, короткія, У. С. 20) Тоже Б. Р. С. 21) Тоже У. С. 22) Тоже Б. Р. С. 23) Ручныя сверла для металла или дерева. 24) Перки для дреля, комплектъ въ 7 шт. 25) Перки для дреля. 26) Стойки со сверлами пр. хв. У. С. 27) Тоже Б. Р. С. 28) Короткія сворла мм. разм. пр. хв. У. С. 29) Тоже Б. Р. С. 30) Стойки со сверлами пр. хв. пров. кал. У. С. 31) Тоже Б. Р. С. 32) Ручныя сверла мм. разм. У. С. 33) Тоже Б. Р. С. 34) Ручныя сверла для металла или дерева мм. разм. 35) Раздвижныя развертки мм. разм. 36) Развертки безъ хв. мм. разм. 37) Тоже съ притупленнымъ концомъ. 38) Ручныя развертки У. С. 39) Тоже Б. Р. С. 40) Сверла для патрона кон. хв. У. С. 41) Тоже Б. Р. С. 42) Цилиндро-коническія развертки У. С. 41) Тоже Б. Р. С. 42) Цилиндро-коническія развертки У. С. 45) Тоже Б. Р. С. 46) Сверла для патрона пр. хв. У. С. 47) Тоже Б. Р. С. 48) Нормальныя конусныя развертки. 49) Раздвижныя развертки. 50) Развертки безъ хвоста У. С. 51) Тоже Б. Р. С. 52) Тоже съ притупленнымъ концомъ У. С. 53) Тоже Б. Р. С. 54) Ручныя развертки мм. разм.

Digitized by Google





TAPER SHANK DRILLS*
CARBON STEEL NO. B1
HIGH SPEED STEEL NO. B2

STRAIGHT SHANK DRILLS
LONG SET
CARBON STEEL NO. B3
HIGH SPEED STEEL NO. B4

Diameter, Inches	Price Each		Length Over All Inches		Diameter, Inches	Price Each		Length Over All Inches	
	Carb Steel	High Speed	Taper	Straight		Carb. Steel	High Speed	Taper	Straight
1/16	$0.45	$0 90	4 3/8	3 5/8	1 1/64, 1 1/32	$12.50	$25.00	16	16
3/64	.45	.90	4 1/2	4	1 1/16, 1 3/64	13.25	26.25	16 1/2	16 1/2
1/32	.45	.90	4 1/2	4 3/8	1 1/32, 1 1/16	14.00	27.50	16 1/4	16 1/4
5/64	.45	.90	4 5/8	4 3/4	1 3/32, 1 1/8	14.75	28.75	16 3/8	16 3/8
1/16	.45	.90	5 1/8	5 1/8	1 5/32, 1 3/16	15.50	30.00	16 1/2	16 1/2
3/32	.45	.90	5 1/4	5 3/8	1 7/32, 1 1/4	16.25	31.25	16 1/2	16 1/2
7/64	.45	.90	5 3/8	5 3/8	1 9/32, 1 5/16	17.00	32.50	16 1/2	16 1/2
1/8, 9/64	.50	.90	5 3/4	5 3/4	1 11/32, 1 3/8	17.75	33.75	16 1/2	16 1/2
5/32, 11/64	.55	1 00	5 7/8	5 7/8	1 13/32, 2	18.50	35.00	16 1/2	16 1/2
3/16, 13/64	.60	1.10	6 1/8	6 1/8	2 1/64, 2 1/32	19.25	36.25	16 1/2	16 1/2
7/32, 15/64	65	1.20	6 1/4	6 1/4	2 3/64, 2 1/16	20.00	37.50	17	17
1/4, 17/64	.70	1 30	6 3/8	6 3/8	2 5/64, 2 3/32	20.75	38.75	17	17
9/32, 19/64	.75	1.40	6 1/2	6 1/2	2 7/64, 2 1/8	21.50	40.00	17	17
5/16, 21/64	.80	1.50	6 3/4	6 3/4	2 9/64, 2 5/32	22.25	41.25	17	17
11/32, 23/64	.90	1 65	7	7	2 11/64, 2 3/16	23.00	42.50	17	17
3/8, 25/64	1 00	1 75	7 1/4	7 1/4	2 13/64, 2 7/32	23.75	43.75	17 1/2	17 1/2
13/32, 27/64	1.10	1 90	7 1/2	7 1/2	2 15/64, 2 1/4	24.50	45.00	17 1/2	17 1/2
7/16, 29/64	1.20	2.00	7 3/4	7 3/4	2 17/64, 2 9/32	25.25	47.50	17 1/2	17 1/2
15/32, 31/64	1 30	2.15	8	8	2 19/64, 2 5/16	26.00	50.00	17 1/2	17 1/2
1/2, 33/64	1.40	2.25	8 1/4	8 1/4	2 21/64, 2 11/32	26.75	52.50	18	18
17/32, 35/64	1.50	2 40	8 1/2	8 1/2	2 23/64, 2 3/8	27.50	55.00	18	18
9/16, 37/64	1 60	2 50	8 3/4	8 3/4	2 25/64, 2 13/32	28.25	57.50	18 1/2	18 1/2
19/32, 39/64	1 70	2.75	9	9	2 27/64, 2 7/16	29.00	60.00	18 1/2	18 1/2
5/8, 41/64	1.80	3.00	9 1/4	9 1/4	2 29/64, 2 15/32	29.75	62.50	19	19
21/32, 43/64	1 90	3 25	9 1/2	9 1/2	2 31/64, 2 1/2	30.50	65.00	19	19
11/16, 45/64	2 00	3.50	9 1/4	9 3/4	2 33/64, 2 17/32	31.25	67.50	19 1/4	19 1/4
23/32, 47/64	2 10	3.75	9 7/8	9 7/8	2 35/64, 2 9/16	32.00	70.00	19 1/4	19 1/4
3/4, 49/64	2.20	4.00	10	10	2 37/64, 2 19/32	33.00	72.50	19 1/2	19 1/2
25/32, 51/64	2 40	4.40	10 1/4	10 1/4	2 39/64, 2 5/8	34.00	75.00	19 1/2	19 1/2
13/16, 53/64	2.60	4.75	10 1/2	10 1/2	2 41/64, 2 21/32	35.00	77.50	20	20
27/32, 55/64	2.80	5.15	10 5/8	10 5/8	2 43/64, 2 11/16	36.00	80.00	20	20
7/8, 57/64	3.00	5.50	10 3/4	10 3/4	2 45/64, 2 23/32	37.00	82.50	20 1/2	20 1/2
29/32, 59/64	3 25	5 90	10 7/8	10 7/8	2 47/64, 2 3/4	38.00	85.00	20 1/2	20 1/2
15/16, 61/64	3.50	6.25	11	11	2 49/64, 2 25/32	39.25	87.50	20 1/2	20 1/2
31/32, 1	3.75	6.75	11 1/8	10 1/8	2 51/64, 2 13/16	40.50	90.00	20 1/2	20 1/2
1 1/32, 1 1/16	4 00	7.25	11 1/4	11 1/4	2 53/64, 2 27/32	41.75	92.50	21	21
1 3/32, 1 1/8	4.25	7.75	11 1/2	11 1/2	2 55/64, 2 7/8	43.00	95.00	21	21
1 5/32, 1 3/16	4.50	8 25	11 3/4	11 3/4	2 57/64, 2 29/32	44.25	97.50	21	21
1 7/32, 1 1/4	4.75	8.90	11 7/8	11 7/8	2 59/64, 2 15/16	45.50	100.00	21	21
1 9/32, 1 5/16	5.00	9.50	12	12	2 61/64, 2 31/32	46.75	102.50	22	22
1 11/32, 1 3/8	5.25	10.15	12 1/8	12 1/8	2 63/64, 3	48.00	105.00	22	22
1 13/32, 1 7/16	5.50	10.75	12 1/2	12 1/2	3 1/64	52.00	112.50	22	22
1 15/32, 1 1/2	5.75	11.50	14 1/8	14 1/8	3 1/32	56.00	120.00	22	22
1 17/32, 1 9/16	6 00	12.25	14 1/4	14 1/4	3 3/64	60.00	127.50	22	22
1 19/32, 1 5/8	6.25	13.00	14 3/8	14 3/8	3 1/16	65.00	135.00	23	23
1 21/32, 1 11/16	6.50	13.75	14 1/2	14 1/2	3 5/64	70.00	142.50	23	23
1 23/32, 1 3/4	7.00	14.65	14 5/8	14 5/8	3 3/32	75.00	150.00	23	23
1 25/32, 1 13/16	7.50	15.50	14 3/4	14 3/4	3 7/64	80.00	157.50	23	23
1 27/32, 1 7/8	8.00	16.40	14 7/8	14 7/8	3 1/8	85.00	165.00	24	24
1 29/32, 1 15/16	8.50	17.25	15	15	3 9/64	91.00	172.50	24	24
1 31/32, 2	9 00	18.15	15 1/8	15 1/8	3 5/32	98.00	180.00	24	24
2 1/32, 2 1/16	9 50	19.00	15 1/4	15 1/4	3 11/64	105.00	187.50	24	24
2 3/32, 2 1/8	10.00	20.00	15 3/8	15 3/8	3 3/16	112.00	195.00	24	24
2 5/32, 2 3/16	10.50	21.00	15 1/2	15 1/2	3 13/64	119.00	202.50	24	24
2 7/32, 2 1/4	11.00	22.00	15 5/8	15 5/8	3 7/32	126.00	210.00	24	24
2 9/32, 2 5/16	11.50	23.00	15 3/4	15 3/4	3 15/64	133.00	217.50	24	24
2 11/32, 2 3/8	12.00	24 00	15 7/8	15 7/8	4	140 00	225.00	25	25

*Shank Taper No. 1 includes Drills from 1/16 to 9/16 in. diameter; No. 2, from 37/64 to 29/32 in. diameter; No. 3, from 59/64 to 1 1/4 in. diameter; No. 4, from 1 15/64 to 2 in. diameter; No. 5 from 2 1/64 to 3 in. diameter; No. 5 or No. 6, from 3 1/16 to 4 in. diameter. (Specify taper desired.)

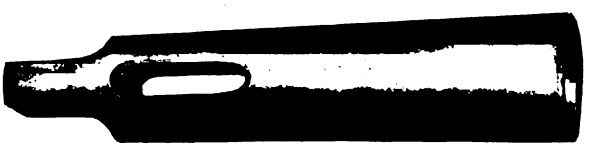
MILLIMETER SIZE DRILLS

TAPER SHANK†
CARBON STEEL NO. B6
HIGH SPEED STEEL NO. B7

STRAIGHT SHANK
LONG SET
CARBON STEEL NO. B8
HIGH SPEED STEEL NO. B9

Diameter mm.	Price each		L'gth Over All mm.	Diameter mm.	Price each		L'gth Over All mm.	Diameter mm.	Price each		L'gth Over All mm.
	Carb. Steel	High Speed			Carb. Steel	High Speed			Carb. Steel	High Speed	
3	$0.45	$0.90	130	27,5	$1 25	$7.75	286	52	$20.00	$37.50	435
3,5	.45	.90	133	28	4 50	8.25	298	52,5	20.75	38.75	435
4	.50	.90	140	28,5	4.50	8.25	298	53	20.75	38.75	435
4,5	.50	.90	146	29	4 75	8.90	302	53,5	21.50	40.00	435
5	.55	1.00	149	29,5	5.00	9.50	302	54	22.25	41.25	445
5,5	.55	1.00	149	30	5.00	9.50	305	54,5	22.25	41.25	445
6	.60	1.10	155	30,5	5.25	10.15	305	55	23.00	42.50	445
6,5	.65	1.20	155	31	5.50	10.75	308	55,5	23.00	42.50	445
7	.65	1.20	159	31,5	5.50	10 75	308	56	23.75	43.75	445
7,5	.70	1.30	159	32	5 75	11.50	359	56,5	24.50	45 00	445
8	.75	1.40	162	32,5	5 75	11.50	359	57	24 50	45.00	445
8,5	.75	1.40	162	33	6.00	12.25	362	57,5	25.25	47 50	445
9	.80	1.50	172	33,5	6 25	13.00	362	58	26 00	50 00	445
9,5	.80	1.50	172	34	6 25	13.00	365	58,5	26.00	50 00	445
10	.90	1 65	178	34,5	6 50	13.75	365	59	26.75	52.50	457
10,5	1 00	1.75	178	35	7 00	14.65	368	59,5	26.75	52 50	457
11	1 00	1.75	184	35,5	7.00	14.65	368	60	27.50	55.00	457
11,5	1.10	1.90	184	36	7.50	15.50	375	60,5	28.25	57.50	457
12	1 20	2.00	191	36,5	7.50	15.50	375	61	28.25	57.50	470
12,5	1 20	2.00	197	37	8 00	16.40	378	61,5	29.00	60.00	470
13	1.30	2 15	203	37,5	8.50	17.25	378	62	29.75	62.50	483
13,5	1.40	2 25	203	38	8.50	17 25	381	62,5	29.75	62.50	483
14	1.40	2 25	210	38,5	9 00	18.15	381	63	30.50	65.00	483
14,5	1 50	2 40	216	39	9 50	19 00	384	63,5	30.50	65.00	483
15	1 50	2.40	216	39,5	9.50	19 00	384	64	31.25	67.50	483
15,5	1 60	2.50	216	40	10 00	20.00	390	64,5	32 00	70.00	483
16	1.70	2.75	222	40,5	10.50	21.00	390	65	32 00	70.00	489
16,5	1 70	2.75	222	41	10.50	21 00	394	65,5	33.00	72.50	489
17	1.80	3.00	235	41,5	11 00	22 00	394	66	34 00	75 00	495
17,5	1.90	3.25	235	42	11.00	22 00	397	66,5	34 00	75.00	495
18	1 90	3.25	241	42,5	11.50	23 00	397	67	35 00	77.50	495
18,5	2 00	3.50	241	43	12 00	24 00	400	67,5	36.00	80.00	495
19	2 00	3.50	247	43,5	12.00	24 00	400	68	36 00	80.00	508
19,5	2 10	3.75	247	44	12 50	25 00	406	68,5	37.00	82.50	508
20	2 20	4 00	254	44,5	13.25	26.25	406	69	37.00	82.50	521
20,5	2 20	4.00	254	45	13 25	26.25	409	69,5	38 00	85 00	521
21	2 40	4 40	260	45,5	14.00	27.50	409	70	39.25	87.00	521
21,5	2 60	4.75	260	46	14.00	27.50	409	70,5	39 25	87.50	521
22	2 60	4.75	267	46,5	14.75	28.75	409	71	40 50	90 00	521
22,5	2 80	5.15	267	47	15.50	30 00	419	71,5	41.75	92.50	521
23	2 80	5 15	270	47,5	15 50	30 00	419	72	41.75	92.50	521
23,5	3 00	5.50	270	48	16.25	31 25	419	72,5	43 00	95.00	521
24	3 25	5.90	276	48,5	17.00	32 50	419	73	43.00	95.00	533
24,5	3 25	5.90	276	49	17 00	32.50	419	73,5	44 25	97.50	533
25	3 50	6.25	279	49,5	17.75	33.75	419	74	45.50	100.00	533
25,5	3.75	6.75	279	50	17.75	33 75	428	74,5	45.50	100.00	533
26	3.75	6.75	282	50,5	18.50	35 00	428	75	46.75	102.50	533
26,5	4 00	7.25	282	51	19 25	36 25	428	75,5	48 00	105 00	533
27	4 25	7 75	286	51,5	19 25	36 25	428	76	48.00	105 00	559

†Shank Taper No. 1 includes Drills from 3 to 14 mm. diameter; No. 2, from 14 1/2 to 23 mm. diameter; No. 3, from 23 1/2 to 31 1/2 mm. diameter; No. 4, from 32 to 50 1/2 mm. diameter; No. 5, from 51 to 76 mm. diameter.



STEEL SOCKETS FOR TAPER SHANK TOOLS
SLEEVE OR SHELL SOCKETS No. B5

Size No.	Description	Price Each
1 to 2	Has No. 1 Hole and outside fitting No. 2 Socket	$1.80
1 to 3	" " 1 " " " " " 3 "	2.40
1 to 4	" " 1 " " " " " 4 "	3.00
1 to 5	" " 1 " " " " " 5 "	4.40
2 to 3	" " 2 " " " " " 3 "	2.40
2 to 4	" " 2 " " " " " 4 "	3.00
2 to 5	" " 2 " " " " " 5 "	4.40
3 to 4	" " 3 " " " " " 4 "	3.00
3 to 5	" " 3 " " " " " 5 "	4.40
4 to 5	" " 4 " " " " " 5 "	4.40
4 to 6	" " 4 " " " " " 6 "	10.00
5 to 6	" " 5 " " " " " 6 "	10.00



FITTED SOCKETS No. B10

Size No.	Description	Length Over All, Inches	Price Each
1 to 2	Has No. 1 Hole and No. 2 Shank	6 1/4	$2.00
1 to 3	" " 1 " " " 3 "	7 1/2	2.50
1 to 4	" " 1 " " " 4 "	8 3/4	3.20
1 to 5	" " 1 " " " 5 "	10	4.80
2 to 2	" " 2 " " " 2 "	7 1/2	2.50
2 to 3	" " 2 " " " 3 "	8	2.50
2 to 4	" " 2 " " " 4 "	9 1/4	3.20
2 to 5	" " 2 " " " 5 "	10 3/4	4.80
3 to 2	" " 3 " " " 2 "	8 1/4	3.20
3 to 3	" " 3 " " " 3 "	9	3.20
3 to 4	" " 3 " " " 4 "	10	3.20
3 to 5	" " 3 " " " 5 "	11 1/2	4.80
4 to 3	" " 4 " " " 3 "	10 3/8	4.80
4 to 4	" " 4 " " " 4 "	11 5/8	4.80
4 to 5	" " 4 " " " 5 "	12 1/2	4 80
4 to 6	" " 4 " " " 6 "	16	12.00
5 to 4	" " 5 " " " 4 "	13 1/8	12 00
5 to 5	" " 5 " " " 5 "	14 1/2	12 00
5 to 6	" " 5 " " " 6 "	16	12 00

Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

Digitized by Google



STRAIGHT SHANK DRILLS, WIRE GAUGE

CARBON STEEL No. B11 HIGH SPEED STEEL No. B12

Wire Gauge No.	Price per Dozen		Decimal Diameter, Inches	Length Over All, Inches	Wire Gauge No.	Price per Dozen		Decimal Diameter, Inches	Length Over All, Inches
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1	$2.75	$7.00	.2280	4	41	$1.70	$5.70	.0960	2 5/16
2	2.75	7.00	.2210	3 15/16	42	1.70	5.70	.0935	2 5/16
3	2.75	7.00	.2130	3 15/16	43	1.70	5.70	.0890	2 1/4
4	2.75	7.00	.2090	3 7/8	44	1.70	5.70	.0860	2 3/16
5	2.75	7.00	.2055	3 15/16	45	1.70	5.70	.0820	2 3/16
6	2.50	7.00	.2040	3 15/16	46	1.65	5.70	.0810	2 1/8
7	2.50	7.00	.2010	3 3/4	47	1.65	5.70	.0785	2 1/16
8	2.50	7.00	.1990	3 15/16	48	1.65	5.70	.0760	2 1/16
9	2.50	7.00	.1960	3 15/16	49	1.65	5.70	.0730	2
10	2.50	7.00	.1935	3 15/16	50	1.65	5.70	.0700	1 15/16
11	2.25	6.30	.1910	3 15/16	51	1.60	5.70	.0670	1 15/16
12	2.25	6.30	.1890	3 15/16	52	1.60	5.70	.0635	1 7/8
13	2.25	6.30	.1850	3 1/2	53	1.60	5.70	.0595	1 15/16
14	2.25	6.30	.1820	3 7/16	54	1.60	5.70	.0550	1 15/16
15	2.25	6.30	.1800	3 7/16	55	1.60	5.70	.0520	1 3/4
16	2.00	6.30	.1770	3 3/8	56	1.55	5.70	.0465	1 11/16
17	2.00	6.30	.1730	3 3/16	57	1.55	5.70	.0430	1 11/16
18	2.00	6.30	.1695	3 3/16	58	1.55	5.70	.0420	1 5/8
19	2.00	6.30	.1660	3 1/4	59	1.55	5.70	.0410	1 5/8
20	2.00	6.30	.1610	3 1/16	60	1.55	5.70	.0400	1 5/8
21	1.90	6.10	.1590	3 1/16	61	1.50	—	.0390	1 1/2
22	1.90	6.10	.1570	3 1/16	62	1.50	—	.0380	1 1/2
23	1.90	6.10	.1540	3 1/16	63	1.50	—	.0370	1 1/2
24	1.90	6.10	.1520	3 1/16	64	1.50	—	.0360	1 1/2
25	1.90	6.10	.1495	3	65	1.50	—	.0350	1 1/2
26	1.80	6.10	.1470	2 15/16	66	1.50	—	.0330	1 1/2
27	1.80	6.10	.1440	2 15/16	67	1.50	—	.0320	1 7/16
28	1.80	6.10	.1405	2 7/8	68	1.50	—	.0310	1 7/16
29	1.80	6.10	.1360	2 15/16	69	1.50	—	.02925	1 3/8
30	1.80	6.10	.1285	2 15/16	70	1.50	—	.0280	1 3/16
31	1.75	5.90	.1200	2 3/4	71	1.50	—	.0260	1 3/16
32	1.75	5.90	.1160	2 15/16	72	1.50	—	.0250	1 1/4
33	1.75	5.90	.1130	2 15/16	73	1.50	—	.0240	1 3/16
34	1.75	5.90	.1110	2 15/16	74	1.50	—	.0225	1 1/8
35	1.75	5.90	.1100	2 15/16	75	1.50	—	.0210	1 1/16
36	1.75	5.90	.1065	2 15/16	76	1.50	—	.0200	1
37	1.75	5.90	.1040	2 1/2	77	1.50	—	.0180	15/16
38	1.75	5.90	.1015	2 7/16	78	1.50	—	.0160	7/8
39	1.75	5.90	.0995	2 7/16	79	1.50	—	.0145	13/16
40	1.75	5.90	.0980	2 3/8	80	1.50	—	.0135	3/4



SQUARE SHANK RATCHET DRILLS

CARBON STEEL No. B13. HIGH SPEED STEEL No. B14

No. 1 Shank 3/8 in. x 5/8 in. by 1 1/2 in. long.

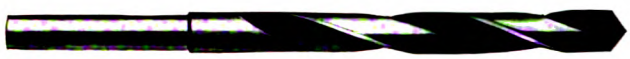
Diameter, Inches	Price Each		Length Over All, Inches	Diameter, Inches	Price Each		Length, Over All Inches
	Carbon Steel	High Speed			Carbon Steel	High Speed	
1/8	$0.90	$2.30	4 1/2	33/64	$2.40	$5.25	8
3/16	.95	2.35	4 1/2	1	2.55	5.50	8 1/2
1/4	.95	2.40	4 1/2	1 1/32	2.70	5.75	8 1/2
5/16	1.00	2.45	5	1 1/16	2.85	6.00	8 1/2
11/32	1.00	2.50	5	1 3/32	3.00	6.30	8 1/2
3/8	1.05	2.55	5	1 1/8	3.10	6.70	9
13/32	1.10	2.60	5	1 5/32	3.25	7.00	9
7/16	1.15	2.65	5	1 3/16	3.35	7.30	9
15/32	1.20	2.70	6	1 7/32	3.50	7.60	9
29/64	1.25	2.75	6 1/4	1 1/4	3.65	7.90	9
1/2	1.25	2.80	6 1/4	1 9/32	3.75	8.25	9
33/64	1.30	2.85	6 1/4	1 5/16	3.90	8.60	9
17/32	1.30	2.90	6 1/2	1 11/32	4.05	9.00	9
35/64	1.35	2.95	6 1/2	1 3/8	4.20	9.40	9
9/16	1.35	3.00	6 1/2	1 13/32	4.35	9.80	9
37/64	1.40	3.10	6 1/2	1 7/16	4.50	10.20	9
19/32	1.40	3.20	6 1/2	1 15/32	4.65	10.60	9
39/64	1.45	3.30	6 1/2	1 1/2	4.80	11.00	9
5/8	1.45	3.40	6 1/2	1 17/32	5.10	12.50	9
41/64	1.50	3.50	6 1/2	1 9/16	5.40	14.00	9
21/32	1.55	3.65	6 1/2	1 19/32	5.75	15.50	9
43/64	1.65	3.80	6 1/2	1 5/8	6.10	17.00	9
11/16	1.75	4.00	7	1 21/32	6.50	18.50	9
45/64	1.90	4.20	7	1 11/16	6.90	20.50	9
23/32	2.05	4.50	7 1/2	1 23/32	7.30	22.50	9
47/64	2.20	4.70	7 1/2	2	7.75	25.00	9
3/4	2.30	5.00	8				



STRAIGHT SHANK DRILLS, SHORT SET

CARBON STEEL No. B15 HIGH SPEED STEEL No. B16

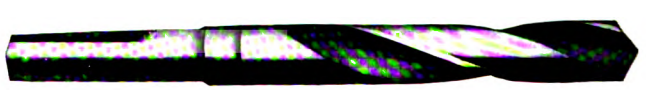
Diameter, Inches	Price per Dozen		Length Over All, Inches	Diameter, Inches	Price per Dozen		Length Over All, Inches
	Carbon Steel	High Speed			Carbon Steel	High Speed	
1/2	$1.50	—	1 1/2	33/64	$3.80	$9.10	4 1/4
31/64	1.55	—	1 3/4	17/32	4.00	10.50	4 3/8
1/2	1.60	$5.70	2 1/2	35/64	4.35	10.50	4 1/2
33/64	1.65	5.70	2 5/8	9/16	4.70	12.00	4 5/8
17/32	1.70	5.70	2 3/4	37/64	5.05	12.00	4 3/4
35/64	1.75	5.90	2 7/8	19/32	5.50	13.50	4 7/8
9/16	1.80	5.90	3	39/64	6.00	13.50	5
37/64	1.85	6.10	3 1/8	5/8	6.50	15.00	5 1/8
19/32	1.90	6.10	3 1/4	41/64	7.00	15.00	5 1/4
39/64	2.00	6.30	3 3/8	21/32	7.75	17.00	5 3/8
5/8	2.25	6.30	3 1/2	43/64	8.50	17.00	5 1/2
41/64	2.50	7.00	3 5/8	11/16	9.25	18.75	5 5/8
21/32	2.75	7.00	3 3/4	45/64	10.00	18.75	5 3/4
43/64	3.00	7.35	3 7/8	23/32	11.00	20.00	5 7/8
11/16	3.25	7.35	4	47/64	12.00	20.00	6
45/64	3.50	9.10	4 1/8				



DRILLS FOR BLACKSMITHS' DRILL PRESSES, 1/2 IN. SHANK, LONG SET

CARBON STEEL No. B17 HIGH SPEED STEEL No. B18

Diameter, Inches	Price Each		Length Over All, Inches	Diameter, Inches	Price Each		Length Over All, Inches
	Carbon Steel	High Speed			Carbon Steel	High Speed	
1/8	$0.45		5 1/8	33/64	$2.40	$4.40	10 1/4
9/64	.45		5 3/8	17/32	2.60	4.75	10 1/2
5/32	.50		5 5/8	35/64	2.80	5.15	10 5/8
11/64	.55		5 7/8	9/16	3.00	5.50	10 3/4
3/16	.60	$1.10	6 1/8	37/64	3.25	5.90	10 7/8
13/64	.65	1.20	6 1/4	1	3.50	6.25	11
7/32	.70	1.30	6 3/8	1 1/32	3.75	6.75	11 1/8
15/64	.75	1.40	6 1/2	1 1/16	4.00	7.25	11 1/4
1/4	.80	1.50	6 3/4	1 3/32	4.25	7.75	11 1/2
17/64	.90	1.65	7	1 1/8	4.50	8.25	11 3/4
9/32	1.00	1.75	7 1/4	1 5/32	4.75	8.90	11 7/8
19/64	1.10	1.90	7 1/2	1 3/16	5.00	9.50	12
5/16	1.20	2.00	7 3/4	1 7/32	5.25	10.15	12 1/8
21/64	1.30	2.15	8	1 1/4	5.50	10.75	12 1/4
11/32	1.40	2.25	8 1/4	1 9/32	5.75	11.50	12 1/4
23/64	1.50	2.40	8 1/2	1 5/16	6.00	12.25	12 3/8
3/8	1.60	2.50	8 3/4	1 11/32	6.25	13.00	12 3/8
25/64	1.70	2.75	9	1 3/8	6.50	13.75	12 1/2
13/32	1.80	3.00	9 1/4	1 13/32	7.00	14.65	12 1/2
27/64	1.90	3.25	9 1/2	1 7/16	7.50	15.50	12 5/8
7/16	2.00	3.50	9 3/4	1 15/32	8.00	16.40	12 5/8
29/64	2.10	3.75	9 7/8	1 1/2	8.50	17.25	12 5/8
15/32	2.20	4.00	10				



DRILLS FOR BLACKSMITHS' DRILL PRESSES, 1/2 IN. SHANK, SHORT SET

CARBON STEEL No. B19 HIGH SPEED STEEL No. B20

Diameter, Inches	Price Each		Length Over All, Inches	Diameter, Inches	Price Each		Length Over All, Inches
	Carbon Steel	High Speed			Carbon Steel	High Speed	
1/8	$0.45		4 7/8	33/64	$2.00	$3.15	6
9/64	.45		4 7/8	17/32	2.10	3.30	6
5/32	.50		5 5/8	35/64	2.20	3.50	6
11/64	.55		5 5/8	9/16	2.30	3.70	6
3/16	.60	$1.10	6	37/64	2.40	3.90	6
13/64	.65	1.20	6	1	2.50	4.10	6
7/32	.70	1.30	6	1 1/32	2.60	4.30	6
15/64	.75	1.40	6	1 1/16	2.70	4.50	6
1/4	.80	1.45	6	1 3/32	2.80	4.75	6
17/64	.85	1.55	6	1 1/8	2.90	5.00	6
9/32	.90	1.60	6	1 5/32	3.00	5.25	6
19/64	.95	1.70	6	1 3/16	3.10	5.50	6
5/16	1.00	1.75	6	1 7/32	3.20	5.80	6
21/64	1.05	1.90	6	1 1/4	3.30	6.10	6
11/32	1.10	2.05	6	1 9/32	3.45	6.40	6
23/64	1.20	2.20	6	1 5/16	3.60	6.70	6
3/8	1.30	2.30	6	1 11/32	3.75	7.00	6
25/64	1.40	2.40	6	1 3/8	3.90	7.40	6
13/32	1.50	2.50	6	1 13/32	4.05	7.80	6
27/64	1.60	2.65	6	1 7/16	4.20	8.20	6
7/16	1.70	2.75	6	1 15/32	4.35	8.60	6
29/64	1.80	2 90	6	1 1/2	4.50	9.00	6
15/32	1.90	3.00	6				

Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

Digitized by Google



DRILLS FOR BLACKSMITHS' DRILL PRESSES, ⅝ IN. SHANK,

CARBON STEEL No. B21 HIGH SPEED STEEL No. B22

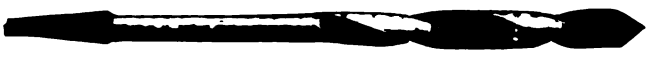
Shanks are 2¼ in. long and 0.648 in. exact diameter

Diameter, Inches	Price Each		Length Over All, Inches	Diameter, Inches	Price Each		Length Over All, Inches
	Carbon Steel	High Speed			Carbon Steel	High Speed	
1/8	$0.50		4 7/8	11/16	$2.00	$3.15	6
9/64	.55		4 7/8	11/16	2.10	3.30	6
5/32	.60		5 5/8	11/16	2.20	3.50	6
11/64	.65		5 5/8	11/16	2.30	3.70	6
3/16	.70	$1.20	6	11/16	2.40	3.90	6
13/64	.75	1.30	6	1	2.50	4.10	6
7/32	.80	1.40	6	1 1/16	2.60	4.30	6
15/64	.85	1.50	6	1 1/16	2.70	4.50	6
9/32	.90	1.55	6	1 1/16	2.80	4.75	6
17/64	.95	1.65	6	1 1/16	2.90	5.00	6
9/16	1.00	1.70	6	1 1/16	3.00	5.25	6
19/64	1.05	1.80	6	1 1/16	3.10	5.50	6
5/16	1.10	1.85	6	1 1/16	3.20	5.80	6
21/64	1.15	1.95	6	1 1/4	3.30	6.10	6
11/32	1.20	2.05	6	1 1/16	3.45	6.40	6
23/64	1.25	2.20	6	1 1/16	3.60	6.70	6
3/8	1.30	2.30	6	1 1/16	3.75	7.00	6
25/64	1.40	2.40	6	1 3/8	3.90	7.40	6
13/32	1.50	2.50	6	1 1/16	4.05	7.80	6
27/64	1.60	2.65	6	1 1/16	4.20	8.20	6
7/16	1.70	2.75	6	1 1/16	4.35	8.60	6
29/64	1.80	2.90	6	1 1/2	4.50	9.00	6
15/32	1.90	3.00	6				



BIT STOCK DRILLS FOR METAL OR WOOD, No. B23

Diameter, Inches	Price per Dozen	Length Over All, Inches	Diameter, Inches	Price per Dozen	Length Over All, Inches
1/16	$2.50	3 1/16	11/16	$11.75	6 3/4
5/64	2.60	3 1/16	1/2	13.00	7
3/32	2.70	3 1/16	11/16	14.25	7 1/4
7/64	2.85	3 1/16	11/16	15.50	7 1/2
1/8	3.00	3 1/16	11/16	16.75	7 1/2
9/64	3.25	3 1/16	5/8	18.00	7 1/2
5/32	3.50	4 1/16	11/16	19.50	7 1/2
11/64	3.75	4 1/16	11/16	21.00	7 1/2
3/16	4.00	4 1/16	11/16	22.50	7 1/2
13/64	4.25	4 1/16	3/4	24.00	7 1/2
7/32	4.50	4 1/16	11/16	25.50	7 1/2
15/64	4.75	4 1/16	11/16	27.00	7 1/2
1/4	5.00	4 1/16	11/16	28.50	7 1/2
17/64	5.50	5 1/4	7/8	30.00	7 1/2
9/32	6.00	5 1/4	11/16	31.50	7 1/2
19/64	6.50	5 1/2	11/16	33.00	7 1/2
5/16	7.00	5 1/2	11/16	34.50	7 1/2
21/64	7.50	5 3/4	1	36.00	7 1/2
11/32	8.00	5 3/4	1 1/16	39.00	7 1/2
23/64	8.50	6	1 1/16	42.00	7 1/2
3/8	9.25	6 1/4	1 1/16	45.00	7 1/2
25/64	10.50	6 1/2	1 1/4	48.00	7 1/2



WOOD BITS FOR BRACE No. B24 SET

This set consists of the following sizes Wood Bits:
⅛, 5/32, 3/16, 7/32, ¼, 5/16, ⅜ inch.
They are contained in a flat case, covered with dark green corduroy silk, and embossed in gold.
Size, 8¾ x 3½ x ¾ inches. Price complete, $3.70

WOOD BITS FOR BRACE No. B25

Size No.	Price per Dozen	Size No.	Price per Dozen
3/32	$3.25	15/32	$8.75
4/32	3.25	16/32	9.50
5/32	3.25	17/32	10.25
6/32	3.50	18/32	11.00
7/32	4.00	19/32	11.75
8/32	4.50	20/32	12.50
9/32	5.00	21/32	14.50
10/32	5.50	24/32	16.50
11/32	6.00	25/32	18.50
12/32	6.50	28/32	21.00
13/32	7.00	30/32	24.00
14/32	7.50	32/32	27.00
15/32	8.00		



JOBBERS' STRAIGHT SHANK DRILL SET

CARBON STEEL No. B26 HIGH SPEED STEEL No. B27

This set comprises all the sizes of jobbers' straight shank drills from 1/16 inch to ½ inch, inclusive, by 64ths. Each drill fits in a hole plainly marked with its size.

No. 26 Set with stand, carbon steel.....$16.00
No. 27 Set without stand, high speed steel..... 26.20



MILLIMETER SIZE STRAIGHT SHANK DRILLS, SHORT SET

CARBON STEEL No. B28 HIGH SPEED STEEL No. B29

Diameter, mm.	Price per Dozen		Length Over All, mm.	Diameter, mm.	Price per Dozen		Length Over All, mm.
	Carbon Steel	High Speed			Carbon Steel	High Speed	
0.5	$1.50		22	5.6	$3.95	$7.00	98
0.6	1.50		27	5.7	2.95	7.00	101
0.7	1.50		32	5.75	2.95	7.00	102
0.75	1.50		35	5.8	2.95	7.00	102
0.8	1.50		35	5.9	2.95	7.00	103
0.9	1.50		38	6.0	2.95	7.35	105
1.0	1.50	$5.70	40	6.1	3.30	7.35	105
1.1	1.55	5.70	41	6.2	3.30	7.35	105
1.2	1.55	5.70	43	6.25	3.30	7.35	105
1.25	1.55	5.70	45	6.3	3.30	7.35	105
1.3	1.60	5.70	45	6.4	3.30	9.10	105
1.4	1.60	5.70	46	6.5	3.30	9.10	105
1.5	1.60	5.70	48	6.6	3.65	9.10	106
1.6	1.60	5.70	49	6.7	3.65	9.10	108
1.7	1.60	5.70	50,5	6.75	3.65	9.10	109
1.75	1.60	5.70	51,5	6.8	3.65	9.10	109
1.8	1.65	5.70	51,5	6.9	3.65	9.10	111
1.9	1.65	5.70	54	7.0	3.65	9.10	111
2.0	1.65	5.70	55	7.1	4.00	9.10	111
2.1	1.70	5.70	56	7.2	4.00	10.50	113
2.2	1.70	5.70	57	7.25	4.00	10.50	113
2.25	1.70	5.70	59	7.3	4.00	10.50	113
2.3	1.70	5.70	59	7.4	4.00	10.50	114
2.4	1.70	5.70	60	7.5	4.00	10.50	116
2.5	1.70	5.90	62	7.6	4.50	10.50	116
2.6	1.75	5.90	63	7.7	4.50	10.50	117
2.7	1.75	5.90	65	7.75	4.50	10.50	119
2.75	1.75	5.90	67	7.8	4.50	10.50	119
2.8	1.75	5.90	67	7.9	4.50	10.50	121
2.9	1.75	5.90	68	8.0	4.50	10.50	121
3.0	1.75	5.90	70	8.1	5.00	12.00	121
3.1	1.80	5.90	70	8.2	5.00	12.00	121
3.2	1.80	6.10	71	8.25	5.00	12.00	121
3.25	1.80	6.10	72,5	8.3	5.00	12.00	121
3.3	1.80	6.10	72,5	8.4	5.00	12.00	122
3.4	1.80	6.10	74	8.5	5.00	12.00	122
3.5	1.80	6.10	76	8.6	5.50	12.00	124
3.6	1.90	6.10	76	8.7	5.50	12.00	124
3.7	1.90	6.10	77,5	8.75	5.50	13.50	125
3.75	1.90	6.10	79	8.8	5.50	13.50	125
3.8	1.90	6.10	79	8.9	5.50	13.50	125
3.9	1.90	6.10	81	9.0	5.50	13.50	127
4.0	1.90	6.10	82	9.1	6.00	13.50	127
4.1	2.00	6.30	84	9.2	6.00	13.50	129
4.2	2.00	6.30	86	9.25	6.00	13.50	129
4.25	2.00	6.30	87	9.3	6.00	13.50	129
4.3	2.00	6.30	87	9.4	6.00	13.50	130
4.4	2.00	6.30	89	9.5	6.00	13.50	132
4.5	2.00	6.30	90	9.6	6.50	15.00	132
4.6	2.25	6.30	90	9.7	6.50	15.00	133
4.7	2.25	6.30	91	9.75	6.50	15.00	133
4.75	2.25	6.30	93	9.8	6.50	15.00	133
4.8	2.25	6.30	93	9.9	6.50	15.00	135
4.9	2.25	7.00	95	10.0	6.50	15.00	135
5.0	2.25	7.00	97	10.5	7.25	17.00	140
5.1	2.60	7.00	97	11.0	8.00	17.00	145
5.2	2.60	7.00	97	11.5	9.00	18.75	145
5.25	2.60	7.00	97	12.0	10.00	20.00	151
5.3	2.60	7.00	97	12.5	11.00	20.00	155
5.4	2.60	7.00	98	13.0	12.50	21.50	160
5.5	2.60	7.00	98				

STRAIGHT SHANK WIRE GAUGE DRILL SET

CARBON STEEL No. B30
HIGH SPEED STEEL No. B31

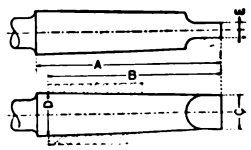


This set comprises all the sizes of straight shank drills, steel wire gauge, from No. 1 to 60, inclusive. The size drill fitting each hole is plainly marked on the stand.

No. 30 Set with stand, carbon steel$14.35
No. 31 Set without stand, high speed steel 30.60
Stand only 3.50

TAPER SHANKS—DIMENSIONS

No.	A, Inches	B, Inches	C, Inches	D, Inches	E, Inches	Taper in 12 Inches
1	2 1/16	2 1/16	.353	.475	1/4	.600 in.
2	3 1/16	2 1/16	.553	.700	1/4	.602 in.
3	3 1/16	3 1/16	.753	.938	1/4	.602 in.
4	5 1/16	4 5/16	991	1.231	1/4	.623 in.
5	6 3/16	5 7/16	1.440	1.748	5/16	.630 in.
6	8 3/4	8 1/4	2.064	2.494	3/4	.626 in.



Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

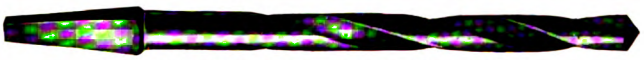
Digitized by Google



MILLIMETER SIZE RATCHET DRILLS

CARBON STEEL No. B32 — HIGH SPEED STEEL No. B33

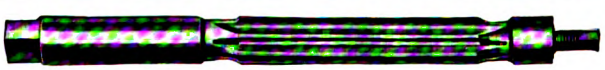
Diameter, mm.	Price Each Carbon Steel	Price Each High Speed	Length Over All, mm.	Diameter, mm.	Price Each Carbon Steel	Price Each High Speed	Length Over All, mm.
5	$1.00	$2.45	127	20,5	$1.75	$4.00	178
6	1.00	2.50	127	21	1.90	4.20	178
6,5	1.00	2.55	127	21,5	1.95	4.50	190
7	1.05	2.55	127	22	2.05	4.50	190
7,5	1.10	2.60	127	22,5	2.15	4.70	190
8	1.10	2.65	127	23	2.20	4.70	190
8,5	1.15	2.65	127	23,5	2.25	5.00	203
9	1.20	2.70	153	24	2.30	5.25	203
9,5	1.20	2.70	153	24,5	2.40	5.25	203
10	1.25	2.75	159	25	2.50	5.50	216
10,5	1.25	2.80	159	25,5	2.60	5.75	216
11	1.25	2.80	159	26	2.70	5.75	216
11,5	1.30	2.85	159	26,5	2.75	6.00	216
12	1.30	2.90	159	27	2.85	6.30	216
12,5	1.30	2.90	159	27,5	3.00	6.30	216
13	1.35	2.95	159	28	3.05	6.70	229
13,5	1.35	3.00	159	28,5	3.10	6.70	229
14	1.35	3.00	159	29	3.25	7.00	229
14,5	1.40	3.10	159	29,5	3.30	7.30	229
15	1.40	3.10	159	30	3.35	7.30	229
15,5	1.40	3.20	159	30,5	3.40	7.60	229
16	1.45	3.30	159	31	3.50	7.90	229
16,5	1.45	3.30	159	31,5	3.65	7.90	229
17	1.45	3.40	159	32	3.75	8.25	229
17,5	1.50	3.50	159	33	3.90	8.60	229
18	1.50	3.50	159	34	4.05	9.00	229
18,5	1.55	3.65	159	35	4.20	9.80	229
19	1.55	3.65	159	36	4.50	10.20	229
19,5	1.65	3.80	159	37	4.65	10.60	229
20	1.65	4.00	171	38	4.80	11.00	229



MILLIMETER SIZE BIT STOCK DRILLS

No. B34

Diameter, mm.	Price per Dozen	Length Over All, mm.	Diameter, mm.	Price per Dozen	Length Over All, mm.
1,5	$2.50	86	13,5	$15.50	184
2	2.70	76	14	15.50	191
2,5	2.85	82,5	14,5	16.75	191
3	3.00	90,5	15	16.75	191
3,5	3.25	97	15,5	18.00	191
4	3.75	103,5	16	19.50	191
4,5	4.00	111	16,5	19.50	191
5	4.25	116	17	21.00	191
5,5	4.50	121	17,5	22.50	191
6	5.00	124	18	22.50	191
6,5	5.50	127	18,5	24.00	191
7	6.00	132	19	24.00	191
7,5	6.50	135	19,5	25.50	191
8	7.50	140	20	27.00	191
8,5	8.00	144	20,5	27.00	191
9	8.50	149	21	28.50	191
9,5	8.50	152	21,5	30.00	191
10	9.25	155	22	30.00	191
10,5	10.50	160	22,5	31.50	191
11	10.50	165	23	31.50	191
11,5	11.75	168	23,5	33.00	191
12	13.00	171	24	34.50	191
12,5	13.00	176	24,5	34.50	191
13	14.25	179	25	36.00	191



MILLIMETER SIZE REAMERS

EXPANSION REAMERS No. B35

Diameter mm.	Price Each	Length Over All, mm.	Diameter, mm.	Price Each	Length Over All, mm.
6	$3.00	95	29	$ 8.00	239
7	3.05	98	30	8.30	243
8	3.15	102	31	8.90	247
9	3.20	108	32	9.20	254
10	3.25	111	33	9.50	257
11	3.30	114	34	10.00	260
12	3.40	121	35	11.00	263
13	3.50	132	36	11.50	270
14	3.65	136	37	12.00	272
15	3.80	141	38	12.50	273
16	4.20	146	39	13.00	278
17	4.40	159	40	13.25	284
18	4.60	164	41	13.50	286
19	4.80	168	42	13.75	287
20	5.25	175	43	14.25	289
21	5.50	187	44	14.50	292
22	5.75	192	45	14.75	295
23	6.00	198	46	15.00	298
24	6.50	205	47	15.50	298
25	6.75	216	48	15.75	302
26	7.00	222	49	16.00	305
27	7.25	229	50	16.25	308
28	7.75	235			



MILLIMETER SIZE REAMERS

FLUTED SHELL No. B36 — ROSE SHELL No. B37

Diameter, mm.	Price Each	Size Hole, mm.	Length Over All, mm.	Fitting Arbor	Diameter, mm.	Price Each	Size Hole, mm.	Length Over All, mm.	Fitting Arbor
19	$2.10	9,50	57		43	$5.10	25,40	89	—
20	2.20	12,70	57		44	5.40	25,40	89	
21	2.20	12,70	63		45	5.70	25,40	89	
22	2.30	12,70	63	No. 5	46	5.70	25,40	89	
23	2.40	12,70	63		47	6.00	25,40	89	No. 8
24	2.40	12,70	63		48	6.00	25,40	89	
25	2.50	12,70	63		49	6.30	25,40	89	
26	2.70	15,87	63		50	6.60	25,40	89	
27	2.70	15,87	70		51	6.60	25,40	89	
28	2.90	15,87	70		52	6.95	31,75	95	
29	3.10	15,87	70		53	6.95	31,75	95	
30	3.10	15,87	70	No. 6	54	7.30	31,75	95	
31	3.30	15,87	70		55	7.65	31,75	95	
32	3.30	19,05	70		56	7.65	31,75	95	
33	3.55	19,05	76		57	8.00	31,75	95	
34	3.80	19,05	76		58	8.35	31,75	95	No. 9
35	3.80	19,05	76		59	8.35	31,75	95	
36	4.05	19,05	76		60	8.70	31,75	95	
37	4.30	19,05	76	No. 7	61	8.70	31,75	95	
38	4.30	19,05	76		62	9.05	31,75	95	
39	4.55	19,05	76		63	9.40	31,75	95	
40	4.55	19,05	76		64	9.40	31,75	95	
41	4.80	19,05	76		65	9.80	38,10	101,5	
42	5.10	19,05	76		66	10.20	38,10	101,5	
					67	10.20	38,10	101,5	No. 10
					68	10.60	38,10	101,5	
					69	10.60	38,10	101,5	
					70	11.00	38,10	101,5	



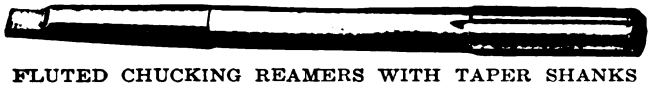
HAND REAMERS

CARBON STEEL No. B38 — HIGH SPEED STEEL No. B39

Diameter, Inches	Price Each Carbon Steel	Price Each High Speed	Length of Flute, Inches	Length Over All, Inches	Diameter, Inches	Price Each Carbon Steel	Price Each High Speed	Length of Flute, Inches	Length Over All, Inches
1/8	$1.00	$3.00	1 1/2	3	1 1/32	$4.45	$14.25	5 3/32	11 11/16
9/64	1.10	3.25	1 5/8	3 1/4	1 1/16	4.60	14.25	6	12
5/32	1.10	3.25	1 5/8	3 1/4	1 1/32	4.75	15.75	6 1/16	12 1/16
11/64	1.20	3.25	1 3/4	3 1/2	1 1/4	4.90	15.75	6 1/8	12 1/16
3/16	1.20	3.25	1 3/4	3 1/2	1 9/32	5.05	17.25	6 1/32	12 1/32
13/64	1.30	3.50	1 7/8	3 3/4	1 5/16	5.20	17.25	6 3/32	12 1/16
7/32	1.30	3.50	1 7/8	3 3/4	1 11/32	5.40	18.75	6 1/16	12 1/32
15/64	1.40	3.50	2	4	1 3/8	5.60	18.75	6 1/8	12 3/8
1/4	1.40	3.50	2	4	1 13/32	5.80	20.50	6 3/32	12 3/32
17/64	1.45	3.75	2 1/8	4 1/4	1 7/16	6.00	20.50	6 1/16	12 1/32
9/32	1.45	3.75	2 1/8	4 1/4	1 15/32	6.20	22.25	6 3/32	12 3/32
19/64	1.50	3.75	2 1/4	4 1/2	1 1/2	6.40	22.25	6 1/8	13
5/16	1.50	3.75	2 1/4	4 1/2	1 17/32	6.60	24.00	6 1/32	13
21/64	1.55	4.25	2 3/8	4 3/4	1 9/16	6.80	24.00	6 1/32	13
11/32	1.55	4.25	2 3/8	4 3/4	1 19/32	7.00	25.75	6 1/32	13
23/64	1.60	4.25	2 1/2	5	1 5/8	7.20	25.75	6 1/32	13
3/8	1.60	4.25	2 1/2	5	1 21/32	7.40	27.50	6 3/4	13 1/16
25/64	1.70	4.75	2 5/8	5 1/4	1 11/16	7.60	27.50	6 3/4	13 1/32
13/32	1.70	4.75	2 5/8	5 1/4	1 23/32	7.80	29.50	6 3/4	13 1/32
27/64	1.75	4.75	2 3/4	5 1/2	1 3/4	8.00	29.50	6 3/4	13 1/32
7/16	1.75	4.75	2 3/4	5 1/2	1 25/32	8.20	31.50	6 3/4	13 1/32
29/64	1.85	5.25	2 7/8	5 3/4	1 13/16	8.40	31.50	6 3/4	13 1/32
15/32	1.85	5.25	2 7/8	5 3/4	1 27/32	8.60	33.50	6 3/4	13 1/32
31/64	1.90	5.25	3	6	1 7/8	8.80	33.50	7	14
1/2	1.90	5.25	3	6	1 29/32	9.00	35.75	7	14
33/64	1.95	5.75	3 1/16	6 1/4	1 15/16	9.20	35.75	7	14
17/32	2.00	5.75	3 1/4	6 1/2	1 31/32	9.40	38.00	7	14
35/64	2.10	6.25	3 3/8	6 3/4	2	9.60	38.00	7	14
9/16	2.20	6.25	3 1/2	7	2 1/16	10.00	40.75	7 1/4	14 1/2
37/64	2.30	6.75	3 1/2	7 1/2	2 1/8	10.40	43.50	7 1/4	14 1/2
19/32	2.40	6.75	3 1/2	7 1/2	2 3/16	10.80	46.25	7 1/2	15
39/64	2.50	7.25	4 1/16	8 1/16	2 1/4	11.30	49.00	7 1/2	15
5/8	2.60	7.25	4 1/16	8 3/8	2 5/16	11.80	51.75	7 1/2	15
41/64	2.70	7.75	4 1/4	8 1/2	2 3/8	12.30	55.00	7 1/2	15
21/32	2.80	7.75	4 1/4	9 1/16	2 7/16	12.80	58.25	7 3/4	15 1/2
43/64	2.95	8.50	4 1/2	9 3/8	2 1/2	13.40	61.50	7 3/4	15 1/2
11/16	3.10	8.50	4 1/2	9 1/2	2 5/8	14.00	64.75	7 3/4	15 1/2
45/64	3.25	9.50	5 1/16	10 3/16	2 3/4	14.60	68.00	8	16
23/32	3.40	9.50	5 1/8	10 1/4	2 13/16	15.40	71.25	8	16
47/64	3.55	10.50	5 1/2	10 1/16	2 7/8	16.20	74.50	8	16
1	3.70	10.50	5 1/2	10 7/8	2 15/16	17.00	77.75	8 1/4	16 1/2
1 1/32	3.85	11.50	5 1/2	11 1/16	2 7/8	17.80	81.00	8 1/4	16 1/2
1 1/16	4.00	11.50	5 5/8	11 1/4	2 15/16	18.60	84.25	8 1/4	16 1/2
1 3/32	4.15	12.75	5 1/2	11 1/16	3	19.40	87.50	8 1/4	16 1/2
1 1/8	4.30	12.75	5 1/16	11 5/8					

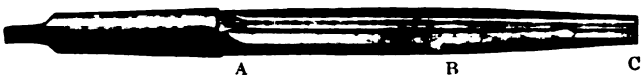
Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

Digitized by Google



FLUTED CHUCKING REAMERS WITH TAPER SHANKS
CARBON STEEL No. B40 HIGH SPEED STEEL No. B41

Diameter, Inches	Price Each		Length of Flute, Inches	Length Over All, Inches	Shank Taper
	Carbon Steel	High Speed			
1/4	$1.45	$3.50	1 1/2	6	
9/32	1.55	3.75	1 1/2	6	
5/16	1.65	3.75	1 1/2	6	
11/32	1.75	4.25	1 1/2	6	
3/8	1.75	4.25	1 3/4	7	
13/32	1.90	4.75	1 3/4	7	No. 1
7/16	1.90	4.75	1 3/4	7	
15/32	2.15	5.25	1 3/4	7	
1/2	2.15	5.25	2	8	
17/32	2.40	5.75	2	8	
9/16	2.40	5.75	2	8	
19/32	2.70	6.25	2	8	
5/8	2.70	6.25	2 1/4	9	
21/32	2.90	6.75	2 1/4	9	
11/16	2.90	6.75	2 1/4	9	
23/32	3.05	7.25	2 1/4	9	
3/4	3.05	7.25	2 1/2	9 1/2	No. 2
25/32	3.35	8.00	2 1/2	9 1/2	
13/16	3.35	8.00	2 1/2	9 1/2	
27/32	3.60	9.00	2 1/2	9 1/2	
7/8	3.60	9.00	2 5/8	10	
29/32	3.90	10.00	2 5/8	10	
15/16	3.90	10.00	2 5/8	10	
31/32	4.15	11.00	2 5/8	10	
1	4.15	11.00	2 3/4	10 1/2	
1 1/32	4.45	12.25	2 3/4	10 1/2	
1 1/16	4.45	12.25	2 3/4	10 1/2	No. 3
1 1/32	4.70	13.50	2 3/4	10 1/2	
1 1/8	4.70	13.50	2 7/8	11	
1 3/32	5.00	14.75	2 7/8	11	
1 1/16	5.00	14.75	2 7/8	11	
1 5/32	5.20	16.25	2 7/8	11	
1 1/4	5.20	16.25	3	11 1/2	
1 5/16	5.50	18.00	3	11 1/2	
1 3/8	5.75	19.75	3 1/4	12	
1 7/16	6.05	21.50	3 1/4	12	No. 4
1 1/2	6.30	23.25	3 1/2	12 1/2	
1 9/16	6.60	25.00	3 1/2	12 1/2	
1 5/8	6.90	26.75	3 3/4	13	
1 11/16	7.20	28.50	3 3/4	13	
1 3/4	7.55	30.50	4	13 1/2	
1 13/16	7.90	32.50	4	13 1/2	
1 7/8	8.30	34.50	4 1/4	14	No. 5
1 15/16	8.65	36.75	4 1/4	14	
2	9.00	39.00	4 1/4	14	



A B C

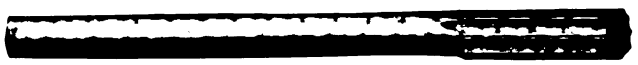
TAPER BRIDGE REAMERS WITH TAPER SHANKS
CARBON STEEL No. B42 HIGH SPEED STEEL No. B43

Diameter Inches			Price Each		Length of Flute, Inches	Length Over All, Inches	Shank Taper
A	B	C	Carbon Steel	High Speed			
1/4	1/4	1/4	$2.30	$3.00	3 3/4	6 3/4	
9/32	9/32	1/4	2.35	3.25	3 3/4	6 3/4	
5/16	5/16	1/4	2.40	3.25	3 3/4	6 3/4	No. 1
11/32	11/32	1/4	2.45	3.50	4	7 1/4	
3/8	3/8	1/4	2.50	3.50	4	7 1/4	
13/32	13/32	1/4	2.55	3.75	4 3/4	8 1/4	
7/16	7/16	1/4	2.60	3.75	4 3/4	8 1/4	
15/32	15/32	1/4	2.65	4.00	5 1/4	9	No. 2
1/2	1/2	1/4	2.75	4.00	5 1/4	9	
17/32	17/32	5/16	2.90	4.25	5 1/4	9	
9/16	9/16	5/16	3.05	4.50	6 1/4	10	
19/32	19/32	5/16	3.20	4.75	7 1/4	11 3/4	
5/8	5/8	5/16	3.35	5.00	7 3/4	12	
21/32	21/32	1/2	3.50	5.30	7 3/4	12	
11/16	11/16	1/2	3.75	5.70	7 3/4	12	
23/32	23/32	5/8	4.00	6.00	7 3/4	12	No. 3
1	1	5/8	4.25	6.50	7 3/4	12	
1 1/32	1 1/32	3/4	4.50	7.00	7 3/4	12	
1 1/16	1 1/16	3/4	4.75	7.50	7 3/4	12	
1 3/32	1 3/32	7/8	5.00	8.00	7 3/4	12	
1 1/4	1 1/4	7/8	5.50	8.75	7 3/4	13	
1 5/16	1 5/16	1	6.00	9.50	7 3/4	13	
1 3/8	1 3/8	1 1/8	6.50	10.50	7 3/4	13	No. 4
1 7/16	1 7/16	1 1/8	7.00	12.00	7 3/4	13	
1 1/2	1 1/2	1 1/8	8.00	14.00	7 3/4	13	



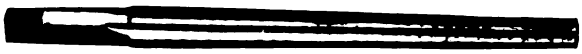
DRILLS AND COUNTERSINKS COMBINED
CARBON STEEL No. B44 HIGH SPEED STEEL No. B45

Size	Price per Dozen		Diam. of Body, Inches	Diam. of Drills, Inches	Size	Price per Dozen		Diam. of Body, Inches	Diam. of Drills, Inches
	Carbon Steel	High Speed Steel				Carbon Steel	High Speed Steel		
J1	$4.60	$12.00	1/2	7/32	J4	$5.00	$12.00	1/2	11/32
J2	4.60	12.00	1/2	9/32	M1	7.25	18.00	5/8	7/32
J3	5.00	12.00	1/2	11/32	M2	7.25	18.00	5/8	9/32



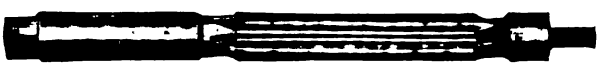
FLUTED CHUCKING REAMERS WITH STRAIGHT SHANKS
CARBON STEEL No. B46 HIGH SPEED STEEL No. B47

Diameter, Inches	Price Each		Length of Flute, Inches	Length Over All, Inches	Diameter, Inches	Price Each		Length of Flute, Inches	Length Over All, Inches
	Carbon Speed	High Speed				Carbon Speed	High Speed		
1/8	$0.90	$2.00	7/8	3 3/4	33/64	$3.25	$9.00	2 5/8	10
9/64	.95	2.25	1 1/4	5	17/32	3.25	9.00	2 5/8	10
5/32	1.00	2.50	1 1/4	5	35/64	3.45	10.00	2 5/8	10
11/64	1.10	2.75	1 1/4	5	1	3.45	10.00	2 3/4	10 1/2
3/16	1.20	3.00	1 1/2	6	1 1/32	3.70	11.25	2 3/4	10 1/2
13/64	1.30	3.25	1 1/2	6	1 1/16	3.70	11.25	2 3/4	10 1/2
7/32	1.30	3.25	1 1/2	6	1 1/32	3.90	12.50	2 3/4	10 1/2
15/64	1.45	3.75	1 1/2	6	1 1/8	3.90	12.50	2 7/8	11
1/4	1.45	3.75	1 3/4	7	1 5/32	4.15	13.75	2 7/8	11
17/64	1.60	4.25	1 3/4	7	1 3/16	4.15	13.75	2 7/8	11
9/32	1.60	4.25	1 3/4	7	1 7/32	4.35	15.25	2 7/8	11
19/64	1.80	4.75	1 3/4	7	1 1/4	4.35	15.25	3	11 1/2
5/16	1.80	4.75	2	8	1 5/16	4.60	17.00	3	11 1/2
21/64	2.00	5.25	2	8	1 3/8	4.80	18.75	3 1/4	12
11/32	2.00	5.25	2	8	1 7/16	5.05	20.50	3 1/4	12
23/64	2.25	5.75	2	8	1 1/2	5.25	22.25	3 1/2	12 1/2
3/8	2.25	5.75	2 1/4	9	1 9/16	5.50	24.00	3 1/2	12 1/2
25/64	2.40	6.25	2 1/4	9	1 5/8	5.75	25.75	3 3/4	13
13/32	2.40	6.25	2 1/4	9	1 11/16	6.00	27.50	3 3/4	13
27/64	2.55	6.75	2 1/4	9	1 3/4	6.30	29.50	4	13 1/2
7/16	2.55	6.75	2 1/2	9 1/2	1 13/16	6.60	31.50	4	13 1/2
29/64	2.80	7.25	2 1/2	9 1/2	1 7/8	6.90	33.50	4 1/4	14
15/32	2.80	7.25	2 1/2	9 1/2	1 15/16	7.20	35.75	4 1/4	14
31/64	3.00	8.00	2 1/2	9 1/2	2	7.50	38.00	4 1/4	14
1/2	3.00	8.00	2 5/8	10					



STANDARD TAPER PIN REAMERS No. B48
Taper 1/4 inch per foot

Size No.	Price Each	Diameter at Small End, Inches	Length of Flute, Inches	Length Over All, Inches
000	$1.50	.101	1 3/8	2
00	1.35	.114	1 1/2	2 1/4
0	1.00	.127	1 5/8	2 3/8
1	1.00	.146	1 3/4	2 1/2
2	1.25	.162	2	3
3	1.50	.183	2 1/4	3 1/2
4	1.75	.208	2 1/2	4
5	2.00	.240	3	4 1/2
6	2.25	.279	3 3/8	5
7	2.50	.331	4 1/2	6
8	3.00	.398	5 1/4	6 3/4
9	3.50	.482	6 1/8	8
10	4.50	.581	7	9
11	6.00	.706	8 1/4	11 1/4
12	7.50	.842	10	13 3/8
13	9.00	1.009	12	16
14	11.00	1.250	14	18 1/4

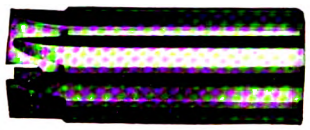


EXPANSION REAMERS
No. B49

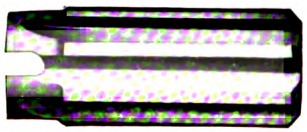
Diameter, Inches	Price Each	Length of Flute, Inches	Length Over All, Inches	Diameter, Inches	Price Each	Length of Flute, Inches	Length Over All, Inches
1/4	$3.00	2	3 3/4	1 1/2	$6.50	4 3/4	8 1/2
9/32	3.05	2 1/8	3 7/8	1	6.75	4 7/8	8 1/2
5/16	3.10	2 1/4	4	1 1/16	7.25	5 1/8	9
11/32	3.15	2 3/8	4 1/8	1 1/8	7.75	5 1/4	9 1/4
3/8	3.20	2 1/2	4 1/4	1 3/16	8.30	5 3/8	9 1/2
13/32	3.25	2 5/8	4 3/8	1 1/4	8.90	5 1/2	9 5/8
7/16	3.30	2 3/4	4 1/2	1 5/16	9.50	5 3/4	10 1/8
15/32	3.35	2 7/8	4 3/4	1 3/8	10.50	5 7/8	10 3/8
1/2	3.40	2 7/8	5	1 7/16	11.50	5 1/8	10 5/8
17/32	3.50	2 7/8	5 1/8	1 1/2	12.50	6	10 3/4
9/16	3.65	2 7/8	5 3/8	1 9/16	13.00	6 1/4	11 1/8
19/32	3.80	2 7/8	5 1/2	1 5/8	13.50	6 1/4	11 1/4
5/8	4.00	3 1/8	5 5/8	1 11/16	14.00	6 3/8	11 3/8
21/32	4.20	3 1/8	6	1 3/4	14.50	6 1/2	11 1/2
11/16	4.40	3 1/2	6 1/4	1 13/16	15.00	6 5/8	11 3/8
23/32	4.60	3 1/2	6 1/2	1 7/8	15.50	6 3/4	11 3/4
3/4	4.80	3 5/8	6 5/8	1 15/16	16.00	6 7/8	12
25/32	5.00	3 1/8	6 5/8	2	16.50	7	12 1/4
13/16	5.25	4	7 1/8	2 1/8	17.50	7 1/8	12 5/8
27/32	5.50	4 1/8	7 3/8	2 1/4	18.50	7 1/4	13
7/8	5.75	4 1/8	7 1/2	2 3/8	19.50	7 3/8	13 1/2
29/32	6.00	4 1/8	7 1/2	2 1/2	20.50	7 1/2	14
15/16	6.25	4 1/8	8 1/8				

Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

Digitized by Google



FLUTED SHELL REAMERS
CARBON STEEL No. B50
HIGH SPEED STEEL No. B51



ROSE SHELL REAMERS
CARBON STEEL No. B52
HIGH SPEED STEEL No. B53



MILLIMETER SIZE REAMERS
HAND REAMERS No. B54

Diameter, Inches	Price Each		Size Hole, Inches	Length Over All, Inches	Fitting Arbor
	Carbon Steel	High Speed			
3/4	2.10	3.85	3/8	2 1/4	No. 4
25/32	2.20	4.00	3/8	2 1/4	
13/16	2.20	4.00	1/2	2 1/2	
27/32	2.30	4.25	1/2	2 1/2	
7/8	2.30	4.25	1/2	2 1/2	
29/32	2.40	4.50	1/2	2 1/2	No. 5
15/16	2.40	4.50	1/2	2 1/2	
31/32	2.50	4.75	1/2	2 1/2	
1	2.50	4.75	1/2	2 1/2	
1 1/32	2.70	5.00	1/2	2 1/2	
1 1/16	2.70	5.00	5/8	2 3/4	
1 3/32	2.90	5.25	5/8	2 3/4	
1 1/8	2.90	5.25	5/8	2 3/4	
1 5/32	3.10	5.50	5/8	2 3/4	No. 6
1 3/16	3.10	5.50	5/8	2 3/4	
1 7/32	3.30	5.75	5/8	2 3/4	
1 1/4	3.30	5.75	5/8	2 3/4	
1 9/32	3.55	6.00	5/8	2 3/4	
1 5/16	3.55	6.00	3/4	3	
1 11/32	3.80	6.50	3/4	3	
1 3/8	3.80	6.50	3/4	3	
1 13/32	4.05	7.00	3/4	3	
1 7/16	4.05	7.00	3/4	3	
1 15/32	4.30	7.50	3/4	3	No. 7
1 1/2	4.30	7.50	3/4	3	
1 17/32	4.55	8.25	3/4	3	
1 9/16	4.55	8.25	3/4	3	
1 19/32	4.80	9.00	3/4	3	
1 5/8	4.80	9.00	3/4	3	
1 21/32	5.10	9.75	3/4	3	
1 11/16	5.10	9.75	1	3 1/2	
1 23/32	5.40	10.50	1	3 1/2	
1 3/4	5.40	10.50	1	3 1/2	
1 25/32	5.70	11.25	1	3 1/2	
1 13/16	5.70	11.25	1	3 1/2	
1 27/32	6.00	12.00	1	3 1/2	No. 8
1 7/8	6.00	12.00	1	3 1/2	
1 29/32	6.30	12.75	1	3 1/2	
1 15/16	6.30	12.75	1	3 1/2	
1 31/32	6.60	13.50	1	3 1/2	
2	6.60	13.50	1	3 1/2	
2 1/16	6.95	14.25	1 1/4	3 3/4	
2 1/8	7.30	15.00	1 1/4	3 3/4	
2 3/16	7.65	15.75	1 1/4	3 3/4	
2 1/4	8.00	16.50	1 1/4	3 3/4	No. 9
2 5/16	8.35	17.25	1 1/4	3 3/4	
2 3/8	8.70	18.00	1 1/4	3 3/4	
2 7/16	9.05	18.75	1 1/4	3 3/4	
2 1/2	9.40	19.50	1 1/4	3 3/4	
2 9/16	9.80	20.50	1 1/2	4	
2 5/8	10.20	21.75	1 1/2	4	
2 11/16	10.60	23.00	1 1/2	4	
2 3/4	11.00	24.25	1 1/2	4	No. 10
2 13/16	11.40	25.50	1 1/2	4	
2 7/8	11.80	27.00	1 1/2	4	
2 15/16	12.20	28.50	1 1/2	4	
3	12.60	30.00	1 1/2	4	
3 1/16	13.10	31.50	1 3/4	4 1/2	
3 1/8	13.60	33.25	1 3/4	4 1/2	
3 3/16	14.10	35.25	1 3/4	4 1/2	
3 1/4	14.60	37.50	1 3/4	4 1/2	No. 11
3 5/16	15.10	40.00	1 3/4	4 1/2	
3 3/8	15.60	42.50	1 3/4	4 1/2	
3 7/16	16.10	45.25	1 3/4	4 1/2	
3 1/2	16.60	48.00	1 3/4	4 1/2	
3 9/16	17.20	50.75	2	5	
3 5/8	17.80	53.50	2	5	
3 11/16	18.40	56.50	2	5	
3 3/4	19.00	59.50	2	5	No. 12
3 13/16	19.60	62.75	2	5	
3 7/8	20.20	66.00	2	5	
3 15/16	20.80	69.25	2	5	
4	21.40	72.50	2	5	
4 1/8	22.90	79.00	2 1/4	5 1/2	
4 1/4	24.40	85.50	2 1/4	5 1/2	No. 13
4 3/8	25.90	92.00	2 1/4	5 1/2	
4 1/2	27.40	98.50	2 1/4	5 1/2	
4 5/8	29.30	105.00	2 1/2	6	
4 3/4	31.20	111.50	2 1/2	6	
4 7/8	33.10	118.00	2 1/2	6	
5	35.00	125.00	2 1/2	6	No. 14
5 1/8	37.40	132.50	2 1/2	6	
5 1/4	39.80	140.00	2 1/2	6	
5 3/8	42.20	147.50	2 1/2	6	
5 1/2	44.60	155.00	2 1/2	6	
5 5/8	47.60	163.75	2 3/4	6 1/2	
5 3/4	50.60	172.50	2 3/4	6 1/2	No. 15
5 7/8	53.60	181.25	2 3/4	6 1/2	
6	56.60	190.00	2 3/4	6 1/2	

Diameter, mm.	Price Each	Length of Flute, mm.	Length Over All, mm.
3	$1.00	38	76
3,5	1.10	41	82
4	1.10	41	82
4,5	1.20	44	89
5	1.25	48	95
5,5	1.30	48	95
6	1.40	51	102
6,5	1.40	51	102
7	1.45	54	108
7,5	1.50	57	114
8	1.50	57	114
8,5	1.55	60	121
9	1.60	63	127
9,5	1.60	63	127
10	1.70	67	133
10,5	1.70	67	133
11	1.75	70	140
11,5	1.85	73	146
12	1.85	73	146
12,5	1.90	76	152
13	1.95	79	159
13,5	1.95	79	159
14	2.00	82	165
14,5	2.10	86	171
15	2.10	86	171
15,5	2.20	89	178
16	2.20	89	178
16,5	2.30	93	187
17	2.40	98	195
17,5	2.40	98	195
18	2.50	103	206
18,5	2.60	106	213
19	2.60	106	213
19,5	2.70	111	222
20	2.75	111	222
20,5	2.80	115	230
21	2.90	119	238
21,5	3.00	119	238
22	3.10	123	246
22,5	3.20	128	256
23	3.25	128	256
23,5	3.35	130	260
24	3.40	130	260
24,5	3.55	136	272
25	3.60	138	276
26	3.80	140	281
27	4.00	143	286
28	4.25	148	295
29	4.45	150	300
30	4.60	152	305
31	4.75	154	308
32	4.90	157	314
33	5.15	158	316
34	5.40	159	318
35	5.60	160	321
36	5.90	163	325
37	6.15	164	328
38	6.40	165	330
39	6.60	165	330
40	6.90	165	330
41	7.20	165	330
42	7.40	171	343
43	7.60	171	343
44	7.90	171	343
45	8.10	171	343
46	8.40	171	343
47	8.60	171	343
48	8.90	178	356
49	9.20	178	356
50	9.40	178	356
51	9.70	178	356
52	10.00	184	368
53	10.20	184	368
54	10.40	184	368
55	10.70	190	381
56	11.00	190	381
57	11.30	190	381
58	11.60	190	381
59	12.00	190	381
60	12.30	190	381

Note. These tables are inserted jointly by the Cleveland Twist Drill Company (p. 598), the Detroit Twist Drill Company (p. 600) and the National Twist Drill & Tool Company (p. 602).

Digitized by Google